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ORIGINAL ARTICLES.

PLATINUM NEEDLES FOR ELECTROLYSIS.

Read before the Section of Surgery and Anatomy, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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It is at present difficult to procure a small sized platinum needle, which is in every respect satisfactory to the operator.

The needles on the market are deficient: for instance, the insulation is rough, uneven, and not smooth on an equal plane from the non-insulated point, to and over the beginning of the insulation, the point is too dull, and will not readily pass through cuticle and fascia; the non-insulated part is weak, and breaks off easily; the shaft, or the whole needle is not stiff enough to be easily pushed into the tissues, and on any attempt at use will bend. The shape of the point is also objectionable, and makes a hole at the point of entrance, instead of cutting evenly and pushing through the tissues more by dilatation, than in such a manner, so that on withdrawal of the needle the point of entrance contracts again, without leaving a bleeding surface.

USE OF NEEDLES.—With the progress and better understanding of electricity in Surgery the use of needles in electrolysis will increase. So far they have been used in the following diseases: Aneurism, varicocele, hydrocele, nævi, portwine marks, angioma, erectile tumors, epilation, xanthoma, ranula, hernia, bronchocele, different tumors, carcinoma, diseases of the prostate, ovarian tumors, fibroids, peri-uterine hæmatocele, salpingitis, hydrosalpinx, and others.

The enumeration of these diseases, in which electrolysis with needles has been used, is made here only as statistical facts, with no intention to elicit a discussion as to whether or not in special cases electrolysis is the best means of treatment. It is a fact, that electrolysis with needles has been used often in a variety of diseases. The probability is, that in the near future, this procedure will be practiced oftener; and therefore the point at issue is, that it is important to procure good needles, if an operation by electrolysis is intended.

The action of electrolysis is principally a chemical decomposition. If, for instance, chloride of ammonium be decomposed by electrolysis, the chlorine liberated at the positive pole will react upon some of the remaining salt, giving free nitrogen and chloride of nitrogen. If iodide of potassium in solution be subjected to electrolysis, one equivalent of iodine liberated at the positive pole will also have one equivalent of hydrate of potassium liberated at the negative pole, showing that the potassium liberated from combination with the iodide has combined with some of the surrounding water. Potassium and sodium are liberated in a nascent state, combining with the oxygen, thus forming compounds, as caustic soda and potash.

If needles are used for electrolysis this chemical action takes place in the tissues, as well as in the needles; the needles themselves will suffer this chemical decomposition in such degrees as the metal used has the capacity of an electrolyte. If, for instance, zinc needles are used, chloride of zinc will form and remain in the tissues and act as a caustic. All metal needles will oxidize at the positive pole. The knowledge of the decomposition of metals by electrolysis has been used practically by trades and arts and in electro-metallurgy. The electrolytic action is mostly polar, that is the elements liberated will collect at their respective pole, and may extend within a certain radius around the pole. It seems, there is no interpolar electrolysis; that means while the molecular action travels between the poles, no alteration of tissues or cells has been found in the intervals between the poles and the changes were confined to the poles and their surroundings. In experiments made I found the action of electrolysis extended to 1½ inches around the poles.

These brief remarks of the electrolytic action on needles will suffice to show how important is the selection of the metal for needles. In some operations the negative needle may be of steel, for others the operator may prefer any other metal to carry out his particular intentions. There are many cases, in which it is essential to use a needle of metal, which neither oxydizes or decomposes

by the electrolytic action. There is only one metal which has all the qualities necessary in such cases, that is platinum. It is not in the scope of this paper to discuss what kinds of metal should be used in the different operations; the only object is to show how platinum needles should be made, in order to answer their purpose.

Platinum is a metal of the color of silver, but less bright. Its specific gravity is 20. It is harder than iron, undergoes no alteration in air, resists the action of acids, and can be rolled into thin plates and wire. It is also ductile, which is the only drawback to its use under consideration. The needles are very flexible and bend easily; for the same reason it is difficult to make a sharp point which will readily penetrate the tissues. If needles of a large size can be used, we have no difficulty, and platinum answers well, but the trouble begins when a needle of a small size is required to be introduced into small nodules, through tough tissues.

Here are some samples of the deficiencies. The needle is often too flexible, and the point dull and fragile, so that on an attempt to penetrate the tissues it either bends or breaks, or the insulation is insufficient and rough. Instrument makers make either or all these errors.

A perfect insulation is made in New York at one place only, viz.: that of Geo. Tiemann & Co., but their beautiful insulation as a rule weakens the needle, though lately that error has been to a considerable degree corrected.

A good needle for our purpose must possess the following qualities:

1. It must be of a small size, in order to enter dangerous anatomical places, without injuring vessels, etc.

2. There must be stiffness, which enables the operator to push through cuticle and fascia into tumors without bending.

3. The point must be sharp, entering the tissues without causing hæmorrhage, a wound or slough.

4. The whole needle with a perfect insulation must be even and smooth.

It will be perceived that the construction of the ideal platinum needle of small size offers many difficulties, which are not easily overcome. Only those who have experienced failures, understand what resistance the tissues offer to the entrance of the needle, and what force is needed to push the needle to the desired position. First are the cutaneous surfaces, which offer resistance and often the point breaks, the shaft bends and the passage of the needle appears almost impossible. After an entrance is effected the needle generally passes smoothly through the soft tissues, but only to encounter a new obstacle by coming in contact with the fascia. Some deep fascia are very tough and offer considerable resistance to the force of the operator, even with stiff steel needles. Among those points may be mentioned—the cervical fascia, the thoracic fascia, particularly the ligamenta suspensoria, enveloping the mammary gland, the deep fascia under the pectoralis muscle, the fascia lata of the thigh, which is the thickest in the upper and outer side of the limb; the gluteal aponeurosis, investing the gluteus medius. At the linea aspera we find two strong inter-muscular septa. After the needle has overcome these obstacles it meets other dangerous anatomical points of vessels and nerves, through which it must be guided to its proper position before the electricity is allowed to work. The position of the working point of the needle must be in a place far enough from the cutaneous surface and the point of entrance, in order to avoid burning these parts, which would be followed by sloughing ulcers, leaving behind very ugly scars, as mementos. There are also tumors, some having on the outside a capsule, which resist an entrance of almost any force. Considering all these difficulties I have given my orders for a small platinum needle as follows:

The needle to be 3 inches long; size equal to a No. 6 French scale. The working point (non-insulated) three-eighths of an inch long. The point, spear shaped with as fine a point as possible, the widest part of the spear one sixteenth F. inch. The needle must be stiff enough to pass through tissues without bending. The blunt end of the needle non-insulated to be connected with cord by a binding screw. The whole needle well insulated, except at its extremities, as mentioned, smooth and even.

In order to make the platinum stiffer than in its natural state, iridium was incorporated into the platinum wire; of which only 2½ per cent. can be taken up. Iridium is found as an alloy, sometimes with platinum; it is very hard and unmalleable. Its chemical equivalent is 99.

There were many failures by different instrument makers; but by persistence, and at last with the aid of Messrs. Geo. Tiemann & Co., of New York, I am able to exhibit now, a needle which is almost perfect. It is best to use platinum only for the working part of the needle, and to manufacture the shaft of steel. This gives more stiffness to the needle and therefore more direct force can be used to enter the tissues without bending or breaking. In the manufacture of the needle it is necessary to connect the two parts firmly together, and at last to make the insulation smooth, running even from point to shaft.

This needle has answered all practical purposes so far, but there is a possibility that a case may present itself having tissues which resist all efforts and force of the needle. In such a case I use first as a leader a strong steel director which is grooved, having a sharp broad point, both sides below the point are sharp and easily cut its way through the cuticle and fascia. This direc-

tor will pass anywhere and is pushed in the place where the platinum needle is desired to follow. Then the platinum needle follows the director in its groove and is pushed above to its place; the director is withdrawn and the electrolysis is made without any difficulty. The director passes direct and straight, making a smaller hole in the cuticle than an uncertain, bending needle would, and after withdrawal of the needle no opening could be seen after the operation.

With the improved platinum needle and, if necessary, the aid of the steel director, the electrolytic operations can be made with certainty, safety, and success.

THYROIDECTOMY.

Read by title in the Section of Surgery and Anatomy, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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In discussing the surgical treatment of goitre or bronchocele I propose to do it in a concise and practical way, basing my remarks largely upon the results of my own experience, and therefore will not deal with it from a statistical, theoretical or classical point of view.

Goitre or bronchocele is met with as one of three varieties: Fibrous, cystic, and pulsating or vascular. Bronchocele associated with exophthalmus not being, except in a few cases, amenable to surgical interference, I will not discuss. Of the fibrous and cystic varieties it is not uncommon to meet with these two conditions present in the same case, thus forming a fibro-cystic goitre. Secondary changes, such as the substistitution of gelatinous colloid material for the albuminous, and calcification in the walls of the cysts, and in the fibrous tissue, may modify the variety or form of the goitre.

The surgical treatment of goitre embraces the following operative procedures: injection, electrolysis, incision and drainage, ligation of the thyroid arteries, division of the isthmus or middle lobe, myroidotomy, and removal. (Enucleation).

Indications.—In considering the indications for operative treatment, the character of the goitre matters but little, the latter having a much more important bearing upon the character of the treatment. The indications I will classify in the following manner, namely: Failure of the ordinary treatment usually put into effect in these conditions, which embrace the class of remedies known as alteratives, used both internally and externally, the goitre persistently increasing in size, and causing any of the following symptoms:

1. Tracheal stridor.
2. Dyspnœa.
3. Dysphagia.
4. A rapidly growing goitre, particularly when in a downward direction.
5. Deformity occasioned by the presence of the tumor.

Tracheal stridor, a prominent and distressing symptom in many cases of large goitre, the result of pressure upon the inferior or recurrent laryngeal nerves, calls for reduction or removal of the growth. The former is practically feasible only when the growth is to a great extent cystic. If the growth be purely vascular, sudden suffocating dyspnœa may be brought about by fright; in fact, anything exciting the circulation, thus occasioning increase in size of the swelling, which by pressure upon the trachea, coupled with the contraction of the muscles which depress the hyoid bone and larynx, may cause almost immediate death. Tracheotomy under such circumstances would be anything but an easy operation. To illustrate the force of my remarks, and especially to the part the muscles may play, I cannot do better than refer to a case reported by Dr. Dewes in the *British Medical Journal* for 1879. The patient referred to was found by the Coventry police, apparently dying of suffocation; when on his admission to the hospital a large goitre was found, and a free median incision was made by M. Reed down to the tumor. The dyspnœa was immediately relieved. Upon the evening of the seventh day the dyspnœa returned, the tumor again enlarging, the patient dying in a few minutes. The autopsy showed that the posterior part of the tumor had broken down, allowing a large extravasation of blood which pressed upon the pneumogastric nerves. Here tracheotomy was out of the question, owing to the cervical portion of the trachea being entirely covered by the tumor.

Extravasation may take place suddenly into a goitre resulting in the formation of a large coagulum. Difficulty of deglutition may be caused by either unilateral or bilateral pressure upon the œsophagus, the symptoms thus occasioned simulating those of stricture.

Enlargement, if the tumor is increasing in a downward direction, is especially to be feared, and constitutes a strong indication for interference, as even tracheotomy, with the sole view of offering temporary relief, may be impossible, particularly if such a patient should be the subject of sudden dyspnœa.

Radical operative treatment in the case of a

goitre which has been subjected faithfully to both internal and external treatment with no effect, not causing any discomfort other than that of deformity would not, I dare say, be in accord with the opinions of the majority of surgeons.

I believe that if such a subject is of suitable age, in good general health, and when deformity of the neck is greatly objectionable, thyroidectomy is justifiable if the goitre is unilateral. Where the entire thyroid is involved, constituting a huge mass, I think it is better to make a complete division of the middle lobe (isthmus), having previously ligated upon either side of the point of the proposed incision.

In the case of singers suffering from a small goitre, where the enlargement has taken place in direction of the groove, between the trachea and the œsophagus, the site of the recurrent laryngeal nerves, and which does not yield to treatment, I am inclined to advise removal. The first evidence of nerve irritation is most likely to be huskiness of the voice, therefore here, as elsewhere, relief of pressure for fear of irremedial injury of the nerve or nerves suggests itself.

DIFFERENT OPERATIVE PROCEDURES.

I will speak of the different operative procedures in the order I have given them in the early part of the paper.

Injection.—The injection of any material with the idea of exciting inflammation short of producing suppuration is both a painful and likely to be prolonged procedure and is not certain to result in cure. One, too, which may be followed by suppuration. The injection of any material with the idea of exciting suppuration and consequent disintegration was, before the days of antiseptic surgery, probably the best treatment at our disposal. The position it holds to-day is a far different one. The first objection to be urged against it is its provoking suppuration. Suppuration in a structure like the thyroid gland, where absorption is so soon to follow with its train of septic symptoms, cannot be regarded as desirable. The injection of any astringent liquid into the parenchyma of a goitre is attended by some immediate risk: namely, that of a coagulum finding its way into the circulation and causing embolic obstruction. Electrolysis in certain purely fibrous goitres is unquestionably curative. (See Paper by Dr. Jas. Henric Lloyd, Trans. College of Phys., Philadelphia, 1890). Therefore in cases of this character coming to me for operation, and where the usual treatment, excepting electrolysis, has been given a fair trial, unless there are urgent symptoms demanding immediate and radical relief I advise treatment by the galvano-puncture before doing anything more radical.

I am one who believes that electricity has a place in surgery but, to be given properly, by which manner good results are to be obtained alone, it must be given by one thoroughly familiar with the subject both practically and theoretically. It is not to be wondered at that so much is said against electricity as it is so often applied by those who know but little about its practical use. The requirements for one who uses the galvano-puncture, I should say, should be

1. Capability in the selection of the cases.
2. A complete knowledge of the subject.
3. Practical experience in its use.

In cystic and vascular goitres electrolysis is not only useless but may be harmful.

Injection and Drainage.—Injection and drainage, done of course antiseptically, where thyroidectomy is for any reason contra-indicated, offers in my judgment, the best treatment for goitres which are purely cystic, also those which are fibro-cystic and where the cystic element predominates; I believe the operation should be done with the patient anæsthetized and not with the use of cocaine. The goitre is to be exposed by a careful dissection, the cyst opened and the walls stitched to the integument. The cyst is now to be thoroughly irrigated with a solution of bichloride, a drainage tube introduced, the cyst cavity packed with iodoform gauze and dressed antiseptically. The details in carrying out antisepsis are to be adhered to most strictly.

In the fibro-cystic goitre where the cystic element is quite as prominent a feature as the fibrous, this treatment will be found in many instances to be followed by degeneration of the fibrous element.

Ligation of the Thyroid Arteries.—After a trial in the ligation of the superior and inferior thyroid arteries it is still an open question if much is gained by this treatment. Certainly in medium size goitres, particularly of the unilateral variety. the ligation of the thyroids is almost as much of an operation as removal, and one, I should say, quite as difficult. I can scarcely see the feasibility of this procedure, except perhaps when done in connection with division of the isthmus or middle lobe.

Thyroidotomy —Thyroidotomy division of the isthmus or middle lobe between ligatures, I believe to be advisable when the tumor is very large and involves the entire gland. The experience Mr. Sydney Jones (see *Lancet*, November, 1883), has had with this operation is, to my mind, quite sufficient to recommend it.

Excision of the thyroid gland, an old operation dating back to the time of Albueasis, has been and is at the present time regarded as a procedure attended by great risk, both so far as the immediate and the remote dangers are concerned.

The immediate dangers of the operation are shock, hæmorrhage and injury to the neurread laryngeal nerves. The remote danger is regarded to be chiefly myxœdema. My experience with thyroidectomy has been confined to the re-

moval of unilateral goitre, in none of which cases has myxœdema followed. I must confess I would be apprehensive of this sequel in the removal of the entire thyroid. There is a wide difference of opinion among operators as to the proportion of cases in which it has been seen to follow complete thyroidectomy. That myxœdema will occur after complete removal of the thyroid gland there is absolutely no doubt. This has been proven both by recorded cases, also by the exhaustive experiments of Mr. Victor Horsly. I cannot feel other than that there are but few cases where the operation of complete removal of the thyroid gland would be justifiable, believing as I do that thyroidotomy would suffice. Certainly thyroidotomy should first be done, or at least attempted, when if this fails to offer relief, complete thyroidectomy may be entertained.

TECHNIQUE OF THE OPERATION.

The essential points to be observed in the removal of either a unilateral or bilateral goitre are

1. A clean exposure of the proper capsule of the tumor.

2. Not to open the capsule.

3. Securing the superior and inferior thyroid arteries between two ligatures close to their point of entering the gland.

4. The avoidance of injury to the neurrent laryngeal nerve both when exposing the inferior thyroid artery and in the separation of the growth posteriorly.

5. Tying the pedicle by transfixion with a strong aseptic silk ligature. If the dissection has been a clean one there is no occasion for the use of drainage. For closing the wound I prefer the contiuous suture.

Case 1.—Miss A. V., aged 24, school teacher, was admitted to the surgical wards of the German Hospital, June 22, 1887, with a fibro cystic goitre involving the right lateral lobe of the thyroid gland.

The growth was the size of an average fist. She first noticed it six years previous—it has gradually increased in size and at the time of admission was giving her a great deal of trouble in swallowing, as well as paroxysms of dyspnœa. Superficial veins were much enlarged from pressure, growth was movable showing no evidence of adhesions. She was anæmic, otherwise her general health was good. For the past year it had troubled her so much that it was necessary for her to give up teaching, as talking for any length of time excited attacks of dyspnœa. Operation June 23. Growth found to be fibro-cystic, which was easily removed. The wound healed rapidly and patient was discharged July 13, 1889.

Case 2.—F. L., aged 43. Laborer. Large fibro cyst in goitre of right lobe of thyroid, began to form twelve years ago. At the time of admission to the hospital patient was suffering with dysphagia and dyspnœa. Growth was dissected out. Many vessels were tied with catgut. Union by first intention; patient made a good recovery.

Case 3.—Miss A., age—. American. Occupation, teacher in a convent; came under my observation in the summer of 1890, presenting a tumor of the left side of the neck extending from the angle of the jaw above, to the clavicle below, inwards to beyond the median line of the neck and posteriorly to beyond the outer edge of the sterno-mastoid muscle and riding over the large vessels. The middle of the anterior surface of the tumor presented a depressed cicatrix. This growth had been present for several years. Two years ago it was much larger than now; when it was capped a quantity of clear fluid drawn off, and the sac injected with a tincture of iodine. The size of the growth was diminished by the tapping, but not entirely removed. Prolonged suppuration followed the tapping, ending finally in the obliteration of the sac. The growth, which was fibro-cystic in character, now became fibrous as a result of the elimination of the cystic element. My diagnosis was a fibrous goitre involving the isthmus and the left lateral lobe of the thyroid gland. The patient was prompted to seek further relief for the following reasons:

1. On account of chronic hoarseness which at times amounted almost to aphonia.

2. On account of the growth increasing slowly in size.

3. On account of discomfort in both breathing and swallowing.

4. On account of the deformity of the neck.

I suggested a trial of electrolysis before having the operation of thyroidectomy, feeling that the latter operation would be a more difficult one in the present case than ordinarily, owing to the inflammatory process set up by the iodine. The patient was referred to Dr. James Henric Lloyd, who made 15 punctures with the galvano-cautery with a positively negative result. There was left but one course now to pursue, that of the removal of the growth, which I advised and to which the patient agreed. Accordingly, January 29th, 1891, with the patient under ether, after a careful, tedious and long dissection, I removed the growth. There were many vessels to contend with, but by far the most troublesome part of the operation, was the attempt to separate the internal jugular vein, owing to its being adherent to the capsule of the goitre. In this attempt the vein was torn at three points. The bleeding was arrested by the application of hæmostatic forceps which were allowed to remain for 72 hours. The pedicle, as well as the blood vessels, were tied with aseptic silk. Following the operation, there was difficulty in swallowing, which was attributed to the manipulation of the œsophagus necessitated

by the separation of the growth. An irritated cough and high pulse rate (ranging from 140-160), persisted for three days. This I believe was due to nerve irritation, consequent upon the operation.

Case 4.—E. F. C., 64 years, American. Occupation, farmer. A tumor in the anterior portion of the neck was first discovered by the patient about twenty years ago, during which time its growth has been slow. For the past year its growth was rapid, especially since last summer. It never produced any symptoms other than marked difficulty in breathing. For the past year the patient has not been able to sleep on his back or right side. He was admitted to the German Hospital, March 23, 1891. The tumor, the size of a large fœtal head, occupied the anterior or left lateral region of the neck, extending from the angle of the jaw to two inches below the clavicle. There was laryngeal stridor with aphonied and painful paroxysmal of dyspnœa. A diagnosis of cystic goitre was made. Owing to the advanced age of patient, and his general condition, by no means favorable for enucleation, I decided to open and drain. His dyspnœa was so severe it was not advisable to give an anæsthetic until the tumor was aspirated, thus relieving the pressure symptoms. This was done the following day and I drew off a semi-gelatinous fluid tinged with blood. Ether was then given and cyst was opened, and its walls stitched to the skin. This was followed by considerable hæmorrhage which required the packing of the sac with iodoform gauze around the drainage tubes. After this the growth was reduced to the size of an ordinary fist. The patient progressed slowly, with a temperature fluctuating between 99 and 102°. The pressure symptoms were relieved completely. He is still under observation and now the tumor is the size of a hen's egg and there is a sinuous track occupying the seat of the drainage tube. The tumor occupied the anterior and left lateral region of neck. A diagnosis of cystic goitre was made; owing to the advanced age of patient, and his general condition, by no means favorable for enucleation, I declined to open and drain the cyst, which was done the following day. I first operated and drew off a semi-gelatinous fluid tinged with blood. I then opened the cyst and stitched the walls to skin. This was followed by considerable hæmorrhage, which necessitated the packing of gauze around the drainage tube.

ACETANILIDE is now being used in lieu of iodoform in some hospital practice in the form of a fine powder on some kinds of sores.

DR. E. S. ELDER, of Indianapolis, was elected president of the Mitchell District Medical Society at its recent meeting at West Baden.

CŒLIOTOMY (ABDOMINAL SECTION) FOR RUPTURE OF THE PARTURIENT UTERUS.

Read by Title in the Section of Surgery and Anatomy, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY HENRY C. COE, M.D.,
OF NEW YORK.

Introduction.—Although the literature of this subject is quite exhaustive, most authors deal with the etiology and pathology of rupture of the uterus, rather than with the treatment, and much of the teaching with regard to the latter antedates the era of modern abdominal surgery. The writer feels some hesitation in writing upon this theme, as it has been already ably presented to the American Medical Association by Dr. Wm. H. Walker and Dr. C. A. R. Reed, in papers read before the Obstetric Section. The writer's purpose in reintroducing the subject before the Surgical Section is to have it discussed from the broad standpoint of *general surgery*. This is entirely proper, since rupture of the uterus is to be considered in the same light as rupture or other lesions of any other of the abdominal viscera. It is preëminently a *surgical emergency*, and should not be studied from its gynecological (or obstetrical) side alone. When Lawson Tait feels justified in proposing Porro's operation as the proper treatment for placenta prævia, we may well ask: "Is simple expectant treatment applicable to the far more formidable obstetrical complication, rupture of the uterus?" Note that the paper deals with rupture of the *parturient* uterus, and not with injuries of the organ before labor. This is an important distinction, to be borne in mind in the discussion.

The writer bases his paper entirely upon his personal experience—that of four cases (seen within a period of eighteen months) in which abdominal section was performed. One case was successful, the patient being now in perfect health.

Brief outline of cases:

Case 1 (reported *in extenso* in *New York Med. Record*).—Rupture due to undue interference in the first stage (forceps and attempted version), the child being of unusual size. Operation two hours after the accident, the patient being in collapse from active internal hæmorrhage. The child's head had escaped from the rent, which extended from the cervix through the left broad ligament, half way to the fundus. Child extracted through the rent, after application of rubber cord. Uterus removed and pedicle treated by the extra-peritoneal method. On account of extensive laceration, the entire stump sloughed out, but the patient made a good recovery.

Case 2.—Cause of lesion identical with that in Case 1. Injury not recognized until twenty-four hours after the birth of the child, when the patient was already septic. Cœliotomy. Trans-

verse tear on posterior aspect, 4 inches long, in lower segment, with commencing peritonitis. Rent sutured, and thorough irrigation and drainage. Death from shock twelve hours later.

Case 3.—Moderate contraction of anterior conjugate, with large child. High forceps unsuccessful. Delivery after difficult version. In removing an adherent placenta the accoucheur withdrew a coil of small intestine, which prolapsed through a rent in the posterior wall of the uterus. It was replaced (as was supposed), and the opening was plugged with iodoform gauze. Abdominal section was then regarded as unjustifiable, on account of profound collapse. The writer saw the patient eighteen hours later, found her in fair condition, the upper portion of the vagina being filled with intestine. He proposed and performed cœliotomy at once. There was a transverse tear posteriorly in the lower segment, extending between the bases of the broad ligaments. It was too extensive to suture, so both broad ligaments were clamped, and the uterus was extirpated *in toto* in five minutes. It was found that the intestine had not been replaced, but had been nipped by the edges of the rent, so that at least 3 feet were black and gangrenous. Irrigation and gauze drainage per vaginam. Death from shock ten hours later.

[The above were private cases.]

Case 4 (Maternity Hospital).—Spontaneous rupture during normal labor, not recognized. Collapse five hours later, but no extensive hæmorrhage. The writer saw the patient twelve hours after the accident, and diagnosticated rupture of the uterus with internal bleeding. A consultation of the attending staff was held, and the unanimous opinion was that there was an extensive laceration into the left broad ligament, and that active hæmorrhage was in progress, which it was necessary to arrest. There was doubt as to whether the rent extended into the peritoneal cavity or not. Exploration advised. This was conducted rapidly. No blood found in the abdominal or pelvic cavity. There was an immense hæmatoma of the left broad ligament, extending upward into the corresponding iliac fossa. Abdominal wound closed and vagina tamponed with gauze, although *there had not been any external hæmorrhage whatever.* Death from shock.

Here follow extended references to the literature of the subject, from which and the cases reported are drawn the following inferences:

Many cases of spontaneous rupture are doubtless unrecognized by the general practitioner. Profound shock after delivery should always awaken suspicion, even if there is only moderate external hæmorrhage, and a thorough examination should be made. Text-books give rules for recognizing rupture only *during* parturition.

The rules laid down for the treatment of rupture are uncertain and confusing. The tendency of the practitioner is toward purely expectant treatment. He would pack the vagina with gauze and wait. This course is too often fatal. The emergency is a *surgical* one, and is to be treated according to the ordinary rules of surgery.

The fact that successful cases of cœliotomy for rupture of the parturient uterus are comparatively rare, is no more an argument against the operation, than if it was applied to gunshot wounds of the abdominal viscera. In analyzing the unsuccessful cases, it will generally be found that operative interference came *too late, i. e.*, from eight to eighteen hours after rupture. The writer's successful case was as unfavorable as could be imagined, but the patient was operated upon promptly, as soon as the lesion was discovered. Two methods of active treatment are now recognized and practiced, viz.: 1. Drainage per vaginam. 2. Abdominal section, followed by either, *a*, drainage; *b*, section of the tear; or *c*, amputation of uterus. Simple drainage has some powerful supporters (mainly in the Vienna school), and the statistics are apparently convincing, but it is not capable of general application to all cases, and the indications are not always clear, because without opening the abdomen it is frequently impossible to determine the following important points: 1. The nature and extent of the tear; 2. The presence of active hæmorrhage; 3. The presence of blood and amniotic fluid in the peritoneal cavity. [It is assumed that the uterus has been emptied.] The writer thinks that abdominal section is indicated under the following conditions:

I. Before the uterus is emptied.

1. When the placenta or *any* portion of the fœtus has escaped from the rent. Attempts at manual delivery only increase existing shock and destroy the patient's chances after section, as invariably shown by records of unsuccessful cases.

2. When there is evidence of progressive internal hæmorrhage.

II. After the uterus is emptied.

1. When there is extensive prolapse of the gut through the tear (as in Case 3).

2. In all complete lacerations (especially in those involving the broad ligaments), except small tears low down, near the vaginal fornix (as in Case 2), where good drainage can be maintained.

3. In incomplete tears in which the broad ligament is extensively involved (as in Case 4), and there is evidence of progressive hæmorrhage. [This point must remain *sub judice.* Only one other beside the writer (Peters) has opened the abdomen in such a case. His patient died, and the report of the case provoked considerable adverse criticism. In the discussion before the Vienna Obstetrical Society, only Gustav Braun expressed the opinion that section was justifiable when there was no evidence of progressive inter-

nal bleeding, and it was not certain whether the tear was complete or not.] Parvin's summary is a comprehensive one, viz.:

"Probably the solution of the question is this, that where the tear is in such a position that vaginal drainage is perfect, the abdomen need not be opened; but if such drainage is impossible, or imperfect, then section is indicated."

What shall we do after opening the abdomen?

1. Arrest hæmorrhage, either with forceps or the temporary rubber ligature.

2. If the tear is small (2 inches), and is low down in Douglas' pouch, drainage per vaginam may be indicated.

3. If the tear is clean-cut, without contusion of the edges, and does not involve the cervix or broad ligaments, it may be closed with deep and subserous sutures.

4. If the tear is not low down, is extensive, with contusion of the edges, and especially if a portion of the fœtus protrudes, amputation of the uterus, with extra-peritoneal treatment of the stump, is indicated. (The child can be extracted through the rent before removal of the uterus (Prêvat) or afterwards (Porro).

5. In extensive transverse tears in the lower segment (as in Case 3), and in tears beginning in the cervix and extending upwards through the broad ligament, the writer would strongly urge the propriety of total extirpation of the uterus as the operation *par excellence* (as it is in many cases of hystero myomectomy), for the following reasons:

1. It requires less time than Porro's operation, and is quite as easy, especially if the patient is placed in Trendelenburg's position. There should be no greater shock or loss of blood.

2. *All* the contused tissue is removed, which if left behind in the stump, will inevitably slough and imperil the life of the patient (as in Case 1).

3. Drainage is perfect. After thorough irrigation and toilet of the peritoneal cavity, it can be closed, drainage being maintained per vaginam with iodoform gauze, as after vaginal hysterectomy.

Conclusion.—The writer deprecates any intention of recommending a heroic method of treatment to the entire exclusion of the more conservative. He is an avowed conservative in abdominal surgery, but believes that rupture of the parturient uterus is a desperate emergency, in which a fatal issue is the rule, and that it requires prompt and energetic treatment according to the rules of modern surgery. The fact that the statistics of cœliotomy in these cases have shown a large mortality, is not an argument against the operation. In every case the accoucheur, if not himself a surgeon, should without an instant's delay summon experienced counsel, and explain to the family that immediate resort to abdominal section may be necessary. Only by prompt interference can we improve statistics, and thus elevate the operation above the level of a hopeless and, apparently, unnecessary surgical experiment.

SOME POINTS IN THE SURGICAL TREATMENT FOR THE RADICAL CURE OF HERNIA.

Read in the Section on Surgery and Anatomy, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY AUGUSTUS P. CLARKE, A.M., M.D.,
OF CAMBRIDGE, MASS.

One of the most important features in the surgical treatment for the radical cure of hernia is the selection of the proper material for sutures. The sutures in all cases should be aseptic. The wound made by the incision should also be kept aseptic. The operator should have knowledge of the manner in which the sutures have been made, and in order to have such knowledge he should superintend their final preparation. Sutures which have been prepared and are sold in shops should in no event be trusted, notwithstanding the careful manner in which they may seem to have been prepared. No one, except the surgeon, or his immediate assistants who are to use them, and who have taken occasion to make most careful observation, is at all likely to appreciate this necessity, and to carry out in every detail measures necessary for assuring their preparation in such a manner that they can be relied upon as being surgically clean and perfectly free from germs. Experience has demonstrated that the best material for buried sutures is that obtained solely from animal substance. Catgut and tendon when properly prepared afford the best material as is yet known for such sutures. Considerable experience is required in chromicising them. If the sutures remain long in the acid they become hard and offer too much resistance to the action of the tissues. The same effect occurs when the quantity of acid is in excess of the due proportion. If, on the contrary, the sutures are not sufficiently chromicised they undergo absorption before complete union of the coapted parts of the wound takes place. Silk ligatures, however carefully prepared, should not, as a rule, be employed in operations on hernia; their substance is not akin to those of the tissues into which they are to be inserted; they are liable to be the medium either directly or remotely of sepsis, and are rarely, if ever, absorbed. In cases in which they have been used, it has been necessary, for the most part, to establish some means of drainage. Such expedients serve to prevent the occurrence of immediate adhesion of the tissues, and to render the line of union weak and yielding, and consequently to afford but little protection against a return of the hernia. The

same may be said when horse hair and certain other materials are used for such sutures. It is true that for affording immunity against the recurrence of the hernia, the internal ring may be embossed by the inverting of the sac on its peritoneal surface. This measure may, for the time being, be of some service, especially in a case in which a well fitted truss is worn. Such unnatural coaptation of parts is liable, however, to yield before the super-incumbent pressure of the abdominal viscera and thus to cause a return at length of the hernia. Application of quilled sutures falls far short of accomplishing what is most to be desired, for the adoption of this method of procedure, when silk, or like substances are employed, has to be supplemented by some special provision for drainage to the wound. One of the features which I here insist upon to be achieved is that the several different tissues be coapted, each in its proper order and that direct and immediate union be secured without the necessity of having to resort to any method of drainage whatever. Another important feature to be secured in the operation is the restoration of the obliquity or the valve-like form of the inguinal canal, and also of the internal and external abdominal rings. Attention has been called to the importance of this measure, but as yet, I believe, it has not been generally appreciated. This may be effected by free dissection proceeding from the internal ring. In cases in which the tissues have undergone serious changes, or the parts have become distended, deformed, thickened or attenuated, much difficulty will be encountered in accomplishing such restoration. Every effort, however, should be made to bring back the canal as near as possible to the typical one, as regards length, diameter and obliquity. In those cases in which the canal has become tortuous, or in which the opening is formed at an undue angle to the parietes of the abdomen, and the parts are not reformed, but are left in abnormal condition, the operation undertaken for the radical cure will prove to be of temporary benefit only. Statistics are sometimes offered by different operators to show that certain methods of practice are attended with unusual success. Statistics can be of but little value when the individual operators select cases with the view of showing favorable results of their special methods of operating. In a case in which the sac is to be removed the cord should be freed as high as possible even if the peritoneum has to be impinged upon. The sac should be sewed off by means of aseptic animal sutures; and if the other steps in the operation have been properly taken there will be scarcely any danger of a return of the hernia. There are several advantages in the method of removing the sac. Prominent among them is the greater facility for inspecting its contents and for guarding against the possibility of reducing parts which may be in a state of inflammation. Such a condition of the parts is particularly apt to occur in cases of strangulated hernia, after prolonged taxis or other measures for relief have been undertaken. When the hernia has been properly reduced, the sac should be regarded only as an unnecessary incumbrance. The sac is formed originally from the parietal peritoneum, which frequently becomes distended and thickened. The various changes in its nutrition and vascularity often lead to irritation, inflammation and adhesion, according to circumstances and accidental conditions. In all cases, after opening the sac the surgeon should see whether the circulation returns. If the parts have been too long compressed and there is much danger of sloughing it will be advisable to resort to resection of the necrosed portions and not to assume risks of returning them. After opening the sac and relieving the constriction, and before making reduction, the contents of the sac should be carefully examined. If there is evidence of inflammation or an effusion of lymph, free irrigation with mercuric bichloride should be had recourse to. The sac should then be sewed across at its neck with animal suture, and be excised. Different methods of operating for the radical cure of hernia from time to time have been reported. Emphasis is often laid upon the adoption of the most careful antiseptic precautions. A more particular examination of such reports almost invariably reveals the fact that some method of drainage has been employed. Among the methods observed is the one in which the horse-hair drain left in the canal, or "gauze plugs" connected with the wound; and that the wound united by "granulations from the bottom." The failure on the part of the operator to keep the wound aseptic must necessarily render the line of union weak, the parts in large measure devoid of vitality, and thus incapable of overcoming the pressure which is the cause of the recurrence of the hernia. This is the reason no doubt why so many different methods for the radical cure of hernia have been devised and why each method of operating, for the most part undertaken by a different surgeon, so often proves unsatisfactory. In some cases of femoral hernia excision of the sac is almost imperatively demanded. In those cases in which Macewen's method is adopted the thickened mass is liable to set up more or less irritation, and to become the source of much inconvenience.

When the sac is removed the ring and canal can be narrowed, and sutures can be introduced in close proximity to the vessels without causing injury or disturbance to the circulation. Another advantage, according to Mr. Poland,[1] is that it allows the closure of the neck of the sac, and thus effectually prevents all hæmorrhage from the wound into the peritoneal cavity. After the sac

[1] John Poland, F. R. C. S., Braithwaites Ret., Part 98, page 124.

has been removed the loose folds in the vicinity can be more nearly approximated; the exudation of plastic lymph readily closes the wound effectually from any communication with the abdominal cavity. After the edges of the pillars have been refreshed they may be brought together, and retained by aseptic sutures. By this means the canal is reformed but narrowed, and becomes an effectual barrier against the recurrence of hernia. This method is evidently of far more importance than the one which seeks to utilize the sac by invaginating it in the canal and by converting it into a pad or fixing it as a boss over the internal ring. Of course, in cases of chronic hernia, in which there has been much inflammation, considerable difficulty will be experienced in separating the sac from the surrounding parts. If, however, much care be exercised, and a liberal use of the aseptic sutures be resorted to, the sac can be separated and be removed, to a certain extent, without incurring the risks of gangrene, suppuration or inflammation, and the operation will therefore not appear so difficult or dangerous as some writers would lead us to believe. In a recent case in which the hernia is quite small, the sac and hernia may have passed into the abdomen and so have disappeared. These cases may be operated upon without our interfering with the sac. The edges of the pillars should in such cases be refreshed, and approximated by aseptic animal sutures. The other parts are sewed together according to the method already referred to. In congenital cases the cord and sac are frequently found so blended with each other that to separate the one from the other is often most difficult and tedious. In such cases, when there is no appearance of recent lymph, portions of the sac may be left. The remaining fibres, for the most part, usually undergo absorption or degeneration. This measure in the operation is quite different from the one which, as said before, seeks to plug the canal and internal ring by means of the retained or inverted sac that is liable to form a painful or hardened mass in connection with the ring and canal. In operations for the cure of hernia the use of wire sutures is unnecessary, and should not be encouraged. The use of wire sooner or later becomes the source of inconvenience, if not of serious trouble, and notwithstanding the efforts made in other respects to keep the wound aseptic, their presence is followed by irritation or ulceration, conditions that will necessitate their early removal, and thus compromise the usefulness and advantages that should be derived from the surgical measures undertaken. Other methods of treating the sac have been proposed. The cases in which the method by torsion of the sac can with any degree of safety be resorted to are too few for general considerations. In every such case the operator of course must be a law unto himself. In conclusion I would say that every operation, for the radical cure of hernia, in which the wound is kept strictly aseptic, including the employment of thoroughly aseptic animal sutures, the results will be most satisfactory, and but little danger is to be apprehended of a return of the hernia. These favorable results may be expected to follow in the cases in which the sac has, as far as possible, been excised, without injury to the cord or other parts. In all cases expected to be successful the operation should be so conducted that no drainage, however simple in its details, should in any way be required. The necessity of observing this principle in operations for the cure of hernia has been urged by my friend, Dr. H. O. Marcy.[2] He says the "Coapted surfaces held aseptically at rest, readily tolerate the limited effusion which is utilized in the process of repair. The elimination of the drainage-tube renders the complete closure of an aseptic wound possible, and prevents its further extraneous contamination. Repair ensues as in a subcutaneous wound. The advantages of this method in the treatment of the wound is the assurance of non-infection. By every method of antiseptic dressing with drainage all surgeons have admitted the great difficulty, and, in children, the well nigh impossibility of retaining the wound aseptic." The results of the operations in the hernia cases occurring in Dr. Marcy's practice with which I have been connected, and also in those in my own for the past twenty years, fully justify the conclusion here reached. By the observance of these principles of aseptics in operative treatment for the radical cure of hernia, Dr. Marcy has, according to my judgment, attained a success that has scarcely been paralleled.

ARISTOL: SOME OF ITS USES IN SURGERY.

Read in the Section of Surgery and Anatomy, at the Forty-second Annual Meeting of the American Medical Association, at Washington, D. C., May, 1891.

BY WILLIAM C. WILE, A.M., M.D.,
OF DANBURY, CONN.

My attention was first called to the value of aristol in the treatment of surgical cases, by Dr. Eichoff, of Elberfield, Germany, and Lowenstein, of Vienna, whose reports were published in the early part of 1890. I have always been a firm advocate of the value of iodoform in surgery, but I had become well convinced of the fact that it was, in many cases, a source of great annoyance, from its repulsive odor, to a great majority of cases, and having seen many, where its poisonous effects were apparent, I at once became impressed with the value which must pertain to a remedy which was free from toxic effects, was inodorous and as valuable an antiseptic as iodo-

[2] Treatise on the Radical Cure of Hernia, page 87.

form. One of the very first cases in which I used it was of such a character, and the results were so satisfactory, that it almost immediately displaced iodoform in my practice, and from that day to this I have used aristol entirely when it was at hand and available.

Dr. Hobart Armory Hare, says: Experimental and practical clinical experience have shown that it can be used in all instances where iodoform can be applied externally, and it is said to possess the advantage of being almost entirely harmless to man, although it is a powerful parasiticide.

Dr. C. W. Allen, New York, in a paper read before the American Dermatological Association, gave the results of his experience with aristol, and summed up with the statement that it seemed to possess valuable cicatrizing, granulating and stimulating qualities, was void of the objectionable odor of iodoform.

Dr. Alois Pollak has employed aristol as an antiseptic in twenty-two cases of unhealthy wounds, abscesses, minor surgical operations (such as removal of small tumors or enlarged glands), phlegmonous inflammations and varicose ulcers, and is enthusiastic in praise. He used the drug in the form of a powder, or mixed with ether or vaseline. In all of the cases in which it was employed there was no reaction; and fever, if present, disappeared within twenty-four hours. No pain was experienced in or around the wound, and healthy granulations were rapidly formed. The author regards aristol as an excellent substitute for iodoform; its advantages being that it has no disagreeable odor, is effective in much smaller quantities, and a thin layer of the powder is sufficient to cover the wound.

Dr. Boufill calls attention to the great value of the drug in burns; a 10 per cent. salve of aristol proving eminently efficacious.

Dr. F. Goldmann mentions the use of aristol in speaking of the frequency of burns received during laboratory work; these are sometimes of a peculiarly severe type, but a 5 or 10 per cent. salve with lanoline effected a painless and comparatively quick cure, almost invariably.

Dr. Robert T. Morris, of New York City, after testing aristol in the hospital of the New York Presbyterian Graduate School, says: "It seems after a careful series of experiments that it is superior to iodoform in all classes of surgical cases, in which the former was applied," and Dr. Manley, of the same city, in an article published in the *New England Medical Monthly*, takes about the same ground. The case referred to was that of a little boy, Tommy H., aged 9 years, who had met with a frightful laceration of the left leg. He was with a mate playing on a flat car in the yard of the Housatonic R. R. Co., in the city of Danbury. The car was isolated on a side track, and the boys were running and jumping on and off, dancing on the platform and the like. After a while they tired of their exercise, and seated themselves on the end of the car with their feet hanging over it. Without warning and without being seen by the employes, a car loaded with lumber was backed up to the side track. This car was loaded with loose lumber and over the front the irregular ends protruded. Before the boys realized their danger the car was upon them, and some of the projecting boards caught Tommy's leg. It was almost immediately released, and the injured boy taken to his home while I was sent for. On my arrival I found on a superficial examination that his injury was a very severe one, and that it was advisable to have him taken to the hospital, especially as his home was a poor one, which was done. On arrival at the hospital, he was given ether and a careful examination was made, with the following result. It was found that almost all of the soft parts of the leg were fearfully lacerated, and that the tibia had sustained a transverse fracture. It did not seem that it would be possible that his leg could be saved, but remembering that children have wonderful recuperative as well as reparative power, I determined to make the effort. All of the macerated tissue was carefully dissected, trimmed away, and the wound carefully cleansed. Then the torn ends of the muscles were coaptated as well as possible, the tendons united, and the integument replaced as much as was possible. Of course all of this took a long time, and was done with full antiseptic precautions, and the suturing was made with catgut. The integument was so badly torn and lacerated in some places that it had to be trimmed, and there were some bare spaces. The whole of them was covered with a heavy coating of aristol, enveloped in antiseptic cotton, and put up in a plaster of Paris bandage, setting the fractured bone at this time. This dressing was not removed for one week. There was no elevation of temperature, and the boy required very little anodyne to keep him quiet.

On the removal of the dressing at this time it was found that a most wonderful metamorphosis had taken place. Union had been established over a considerable extent of the integument, and all of the tissues beneath seemed to have united firmly. There was simply no odor to the wound, and quite firm bony union had taken place. Over the spaces which were denuded of the integument healthy granulations were springing up all over, and the prospect was very bright for saving the limb. It was washed off carefully with bichloride solution, one to two thousand, aristol freely dusted on, and plaster of Paris again applied as before, leaving windows for the purpose of frequent dressing of the denuded parts. This was left on for one week more, when it was found

that union in the bone was so firm that the plaster of Paris splint need not be further used. It was dressed as before, and this treatment continued for another week when all was perfectly healed, and in four weeks from the time of his entrance into the hospital he was discharged cured. When we take into consideration the extent of the injury to the soft parts, I am sure that you will agree with me that this result so readily attained was little short of the marvellous.

The next most gratifying case in which I used it was that of James A., who was suffering from a very large specific bubo which was gangreneous in its character. He had been under the charge of several physicians, and his life seemed to hang by a single thread. The cavity was well washed with Marshland's peroxide of hydrogen and packed with aristol. This was renewed every day and the bubo not only rapidly healed, but the general condition of the patient immediately improved. All the internal medication I gave was a dessert-spoonful, three times a day, of the elixir of three chlorides, and a generous diet.

I have used it in varicose ulcers of the leg with the most charming results. In this troublesome affection I firmly believe that no other treatment will bring about such gratifying results as aristol and the rubber bandage. Its effect is immediate and rapid.

A little girl was horribly burned on both legs from her clothes catching afire. The fire was quickly extinguished, but the burns on the limbs were very severe, extending to the second degree. I made an ointment of aristol one drachm to lanolin one ounce and a half, and spread it thickly over the whole inflamed surface. The limbs were then put up in absorbent cotton, and roller bandage, which was not taken off for one week, when it was found that the whole surface had healed, except two places the size of hen's egg, which subsequently healed under a few dressings. I have used it in five other cases of this character with equally good effect.

In recent wounds resulting from traumatism of any character it is probably seen at its best. Its action is peculiar. Take a given wound which has been carefully cleaned by antiseptic methods, stitched together, and aristol dusted on the surface; when the next dressing is made the following will be observed: There has been no exudation. The aristol is as dry as when it was first put on. The wound is also as dry, or even dryer, for where there was a particle of moisture the aristol had sealed it in, as it were; and the wound had healed while perfectly dry. I have never seen a case of injury which was treated by aristol that did not heal perfectly and entirely, provided I had been careful to make it perfectly aseptic prior to its application. In conclusion, aristol has many advantages over iodoform, inasmuch that it is perfectly non-poisonous, has no odor, does not irritate, is fully as good an antiseptic as iodoform, and in our opinion the ideal one.

LINEAR CRANIOTOMY (MISCALLED CRANIECTOMY) FOR MICROCEPHALUS.

Read in the Section of Surgery and Anatomy, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY W. W. KEEN, M.D.,

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I have entitled this paper "Linear Craniotomy" instead of "Craniectomy," the word proposed by Lannelongue and formerly used by myself. The operation is practically a long incision in the skull, the removal of a part of the bone being merely incidental to its being a hard instead of a soft tissue. The termination "ectomy" usually and of right signifies the entire removal of the part preceding this termination, *e. g.*, oöphorectomy, omphalectomy, nephrectomy, etc. Removal of the cranium (as craniectomy means) being scarcely intended or done, our nomenclature should fit the facts. Dr. Bauer uses the word craniotomy in reference to his case (see below), but trephining is, I think, the proper one to describe his operation.

In *The Medical News* of November 29, 1890, I published a case of linear craniotomy for microcephalus. The object of the present paper is to report the later history of this case and two additional cases that I have had, as well as brief notes of one kindly furnished me by Drs. B. Sachs and A. G. Gerster, of New York, and another similar furnished me by Dr. J. C. McClintock, Professor of Surgery in the Kansas Medical College, making with Lannelongue's two cases and Wyeth's case, eight in all that have been done so far, and to refer to two other cases done before my own, for the same disorder and with the same intention, but by methods which I cannot think should be classed as craniotomies.

Case 1.—(For earlier history see *The Medical News*, November 29, 1890.) Since the operation this child has certainly improved steadily and considerably, but not at all to the extent of the case reported by Lannelongue. She screams almost none at all, sleeps better, notices a watch when held before her, observes things about her, and has used a number of words, occasionally but not constantly. She drools and screams but little and has almost lost the restless wringing of the hands which was so marked a peculiarity before the operation.

February 17, 1891. A precisely similar operation to the first was done upon this patient at the Jefferson Hospital. The improved forceps enabled me to do it in thirty-five minutes instead

of an hour and a quarter. She was entirely well in five days. No drainage was used.

March 24. The child is slowly improving. I do not see that her progress has been any greater since the second operation than before.

Case 2.—K. K., girl. Patient of Dr. F. X. Dercum.

Condition, May 23, 1890.—Age 1 year (when first brought to Dr. S. Weir Mitchell at the Orthopædic Hospital and Infirmary for Nervous Diseases). Very small. Makes no attempt to walk or sit; moves arms well; feet and hands cold; muscles flabby. Circumference of head 14¼ inches; diameter, biparietal, 4 inches; occipito-frontal, 4.5 inches. Knee-jerk slight, sensation good, no clonus, no rigidity. Fontanelle closed. Nose-bridge very wide. No mental development; hearing and vision good; does not speak at all; disposition good. Passes water and stools without notice. Spine straight. Five teeth. A general restlessness comes on at times; usually excessively cheerful.

Both parents alive and well. Father and mother are first cousins. No venereal history; no consumption in the family history except a sister of the father who contracted consumption. The mother has been married five years and has two children, of which the patient is the younger. Her brother is 4 years of age, and is strong. He was breast-fed; is hydrocephalic; circumference of head 53.3 cm.

The patient was born at term. Labor lasted twenty four hours and was very hard. No instruments were used. Patient was very small in size. No palsy, but very weak. No fontanelle existed at birth and her head has not grown since, though her body has. She was breast-fed for three months, and since then bottle-fed. She had a cold in her head for six months.

Condition, December 1—Nineteen months of age. Cannot sit alone; constantly in motion; 12 teeth. Circumference of head 36 cm. (14¼ in.). Biparietal, 10.3 cm. (4 1/8 in.); biauricular, 10.2 cm.; bitemporal, 8.3 cm. (3½ in.); occipito frontal, 11.9 cm. (4¾ in.). Circumference of chest, 38.2 cm. (15⅛ in.). Height, 69 8 cm. (27.5 in.). Weight 12.5 pounds. [I append the following normal measurements at birth from Schrœder's *Lehrbuch der Geburtshülfe:* Length 50 cm. Head, bitemporal, 8 cm.; biparietal, 9.25; occipito-frontal, 11.75 cm.; circumference, 34 5 cm.] Top of head quite prominent. Can hold things in her hand; cannot feed herself. Moderate contraction of flexors of both feet; legs not paralyzed, knee-jerk absent, no ankle clonus. In repose idiotic expression. Frontal lobe retreating. Two convulsions this summer, two last winter, each time with teeth. Has the expression of a precocious idiot. Attention can be won, but only momentarily. Mind and eye flit from one thing to another quickly.

Operation at the Infirmary December 3, 1890.—An incision was made one inch to the left of the middle line, parallel to the sagittal suture and six inches in length. A curved incision was then made from the anterior end of this line downward so as to lift a frontal flap, the scar of which would be hidden by the hair. A half-inch button of bone was removed by the trephine, and from this anteriorly and posteriorly a furrow a quarter of an inch wide was cut out of the bone, extending to within an inch of the supra-orbital ridge and an inch above and to the left of the inion. The length of the furrow was five inches.

The amount of hæmorrhage from the scalp was very slight, much less than I have found it in adults. The bone was very thin, about one to one and a half mm. only, but bled freely. Opposite the parietal boss the dura was very adherent to the bone, but at all other points was separated easily. When the point of a pair of scissors was put under the flap of bone thus loosened and the handle of the scissors let down gently, the simple weight lifted the flap perceptibly. The periosteum corresponding to the bone removed was cut away. The dura had not been opened, and appeared normal.

A few strands of horsehair were placed in the furrow and the wound dressed. The operation lasted half an hour. Temp. at its close 98°.

13th, (10th day). The wound healed kindly and quickly, and in five days the stitches were out. During the process of healing the child showed unusual fluctuations of temperature, the highest being, however, only 100.8, for which no apparent cause could be found. After keeping the child a few days longer in the hospital to be sure of a safe recovery she was sent home to day. The attendants at the hospital are decidedly of the opinion that she is quieter and claws at her head much less than she did before the operation, though for myself I can scarcely see much difference.

March 2, 1891. The child has improved very much in general mental condition, but not so rapidly as I could wish. Accordingly, to-day I did a linear craniotomy on the other side of the head in precisely the same manner as the former operation. The operation was wholly completed in twenty minutes by the new forceps.

24th. The evening of the operation her temperature suddenly rose to 104.6°, falling to normal in four days. The rise in temperature was of course too sudden and too great to be the result of the operation. The cause of it was soon discovered to be a marked intestinal disorder which had begun the day before the operation. This fact was not communicated to me by her mother. No drainage was used and the wound was entirely well and the stitches out in five days. Her progress is very much the same as in case 1.

Case 3.—J. L. H., male, aged sixteen months. Was first seen by me on January 10, 1891. In the fifth month of her pregnancy his mother's friendly sympathies were deeply stirred by seeing the dead baby of a friend, and the seventh month of her pregnancy she was startled by being nearly run over. Her labor was normal, lasting three hours; no instruments were used. The child's weight was between seven and eight pounds. The anterior fontanelle was very small at birth and closed at or before seven months of age. The child was breast-fed for three weeks and after that bottle-fed. At about three weeks, six weeks, and three months of age had one or more convulsions. He was very peevish and fretful up to twelve months of age, but of late has been much less so until some recent trouble, presumably his teeth. His parents state that he was a "blue baby" for a year, but Dr. S. Striker, his physician, informs me that it was not discoloration due to a patient foramen ovale, but a constant and very marked mottling of the skin from defective circulation. The child has had attacks of very poor circulation, but of late these have diminished very much. He has also been subject to attacks of apparent pain and of restlessness continuing for a day or two.

Status Præsens January 10, 1891.—A well-nourished, apparently hearty boy; no contracture or other deformity excepting his head. Viewed in front the skull is markedly conical, face broad, top of skull narrow and arching. Circumference on the shaven scalp, 38 cm. (15 in.). Diameters: Occipito frontal, 13.5 cm. ($5\frac{5}{16}$ in.); biparietal, 9.8 cm. ($3\frac{7}{8}$ in.); bitemporal, 8.6 cm. ($3\frac{7}{16}$ in.). The child drools all the time, has never attempted to stand, falls unless held up, and scarcely even holds his head up. He has never talked. He moves his extremities, but very sluggishly; moans a little, sleeps poorly; head and eyes commonly turned to the left and upward, except in the attacks of apparent pain, when they go to the right, and, as his father expresses it, "he twists himself all up." These attacks are not epileptic in character. He yawns often. His attention can be attracted, but with difficulty, and only for a moment. On shaving the head, the broad furrow behind the coronal suture is very marked, and the occiput protrudes posteriorly much more than usual.

Operation, January 16.—Present, Drs. Striker, J. C. DaCosta and Mills. Dr. W. J. Taylor, as usual, assisted me. I thought that the child's circulation had at times been so impaired, that especial care was necessary in administering the anæsthetic, so I requested Dr. Coplin to give the ether, on account of his large experience in the Jefferson College Hospital. After the same method as in my former cases, I cut a groove ¾ of an inch to the left of the middle line, reaching from ¾ of an inch above the supra-orbital ridge well back, nearly to the inion. Its length was $6\frac{3}{8}$ inches. In biting the bone I used a pair of forceps devised by me for the purpose, which answered admirably, so that instead of an hour and a quarter as in my first case, and fifty minutes in my second, I did the operation in thirty minutes. The bone bled quite freely, but not alarmingly, and the bleeding stopped spontaneously. No other incident occurred during the operation, except that the child's breathing at one time was sighing, and he had apparently, about the same time, a slight convulsion. There was tremor of the extremities during the operation. At no time was he deeply anæsthetized. Shortly after the close of the operation I left the child in its crib, in charge of a competent nurse and the mother. He was slightly pallid, but no more so than one would expect after an operation, and there was nothing in the respiration or pulse to cause anxiety. Dr. Taylor did not leave the house till an hour after the operation, when the child's pulse and respiration were entirely satisfactory. An hour and a quarter after the close of the operation, the child gave a few gasps and died instantly, presumably from heart failure. It had not recovered consciousness after the operation. No post-mortem examination could be obtained, in spite of the most earnest efforts.

Case 4 (Gerster and Sachs).—A. F., female, aged 4½ years; labor normal, first child; began to walk after the age of 2 years; in third year began to speak a few words, but these she would use properly. When 13 months old had measles. At 15 months two distinct convulsive attacks, without paralysis. Other convulsive attacks at the age of 22 months and 29 months; none since. After these attacks grew more idiotic; lost what little speech she had, became unruly, fretful and ill-tempered; slept little. The fontanelles had disappeared. The measurements taken on shaved head were: Circumference, 31 cm.; fronto-occipital, from root of nose over top of head to occipital prominence, 30 cm.; biauricular, 32¼ cm. The child was operated under chloroform, the period of anæsthesia lasting not more than fifty minutes; linear craniotomy was done on the left side, from in front of the position of the coronal suture and beyond the lambdoidal suture. The opening in the skull was semicircular. The child's pulse was weak as soon as chloroform began to act; recovered nicely, however. Soon after operation was conscious, and pulse rallied. Without further accident child died suddenly, three and a half hours after operation, from acute anæmia.

Case 5.—In the *New York Med. Record*, February 21, 1891, Dr. John A. Wyeth reports a case of a male child, 11 months old, operated on by a median incision of the scalp from the nose to the occiput. Two lateral trenches, ¼ of an inch wide and ¾ of an inch apart, were made from just above the eyes to the occipital protuberance.

At each end a transverse cut was made in the bone on each side, and a similar transverse cut on each side at the middle. By the fingers these four bone flaps were then forcibly torn loose from the dura mater, widening the trenches from ¼ of an inch to 1 inch each. No injury seems to have been done to the dura. Time required, an hour and a half. Wound well without incident in ten days. A month later the improvement was "surprising and gratifying." The intelligence had greatly increased.

Cases 6 and 7.—Two cases reported by Lannelongue in *L'Union Médicale*, July 8, 1890, and of which a *résumé* appears in my clinical lecture in *The Medical News* of November 29, 1890.

Case 8 (Dr. J. C. McClintock's case).—A girl, aged 3 years and eight months, although appearing to be not over one year of age. Premature birth at eight months; no instruments. Anterior fontanelle closed very early. Totally blind; not the faintest signs of intelligence. Two years ago the orbital plate of the frontal bone on the right side gave way, displacing the right eyeball from the orbit. The knee joint became very painful a few months ago, and the arms and lower limbs contracted. Right tibia and fibula and left femur curved. Head narrow, forehead low. Linear craniotomy (March 28, 1891), on each side of the longitudinal sinus, with lateral grooves at the two ends. The tips of the fingers were then passed into the grooves, and the bones spread on each side until the quarter-inch grooves became an inch wide. The dura was not opened. Next morning the temperature was 103°, with rapid pulse, but soon subsided to normal. Entire union at the end of a week. The time is too brief as yet to judge of the result, but Dr. McClintock reports that the mother says that "since the operation the child is not so restless, does not cry nearly so much, and has required much less care and attention. The extremities are not so tender, and the child will try to play with any little article that is given to it." Before the operation she could only lie on one side; now she will lie on either side. The paralysis has almost disappeared, so that the left hand is used almost as readily as the right.

In considering these cases one is struck by the fact that two of them were followed by speedy fatal results. I presume it is only to be expected that children of such feeble cerebral development accompanied as in my own case (Case 3), with faulty circulation, should be less rugged and less able to stand the shock of an operation. The cause of death in my own case was very clearly, I think, heart-failure, and in Sach's and Gerster's case it was acute anæmia. This mortality, which is quite unusual of course in ordinary brain operations, should induce us to state the risk to the parents in stronger terms than we would were it an ordinary case of trephining. For myself I cannot but think it a very fortunate thing, for if such children cannot be helped it seems to me that death is preferable rather than to linger in this world in such defective and helpless condition.

It should, however, make us especially careful as to the administration of the anæsthetic and we should use all possible means to shorten the operation as much as possible. The forceps I devised for the operation certainly answer the purpose very much better than those I first used, so that the time required for the last operation was only twenty minutes, instead of an hour and a quarter as in my first. In using them it is better to cut alternately a little to the right and left (as one turns his toes out in walking) to prevent their binding. It will be noticed that the upper blade is perforated. This perforation widens from the cutting edge upward, so that each piece of bone bitten out pushes its predecessor loose. In a recent case of spinal laminectomy I used the same forceps to remove the vertebral laminæ, and I found them far superior to any of the other instruments I had on hand, and tried in turn.

I have not yet operated on both sides of the skull, and in view of our present experience I certainly would deprecate a simultaneous operation on both sides. Probably the additional shock would be very unwise and would add greatly to the mortality. Whether two lateral operations done successively will improve the condition of such children more than one remains to be seen. The results as to mental condition in the six cases that have survived may be stated briefly as follows: Lannelongue's second case was reported almost immediately, too early to judge of any results. So too of McClintock's case. In the other four children there can be no question of improvement, very rapid in Lannelongue's case, slower but sure in both of my own and in Wyeth's case. We have, therefore, I think, sufficient reason to encourage us to operate in other cases, and it is this fact, and the fatal result in two, which has led me to report my cases so early, before the final results are obtained. This will require several years, and meantime we ought to make known the immediate results as a guide in other cases.

In the *St. Louis Clinique of Physicians and Surgeons*, April and May, 1890, Dr. Louis Bauer reports the case of a young woman on whom he did a craniotomy for microcephalus. Her age, the measurements of the head and the date of the operation, are not given. Two buttons were removed from the right parietal bone, and the intervening bridge chiseled away. On May 9, presumably 1890, a second operation was performed, on the opposite side of the skull. Prior to the operation there was spastic paresis of the muscles with great tremor, which after the first operation had so diminished as to enable the patient to

thread a needle. There is no statement as to mental condition. She recovered from the second operation, but it is too early to judge definitely of results.

In *The Medical News* of January 3, 1891, Dr. Trimble, of Baltimore, reports the case of a child, 3 years of age, whom he trephined on November 8, 1890. On the right side of the middle line two buttons of bone, 1 inch in diameter and ½ inch apart, were removed, so that the opening measured 2½ by 1 inch. Some improvement was noted on December 6, 1890.

I have not included these cases under the head of linear craniotomy, since it seems to me that they should be considered simply cases of trephining for microcephalus and idiocy, as has previously been done by Fuller and others. The essential difference between trephining and linear craniotomy is this · that in linear craniotomy the intention is to make the entire side of the head a *bony flap*, as it were, whereas the trephining in the cases alluded to simply removed two buttons of bone and the intervening bridge, and so produced a difference in pressure and possibly allowed, simply at the point of trephining, a little bulging of the brain itself. As to the results, so far as the brief time in all the cases will allow us to judge, they seem to be quite as good after trephining as after linear craniotomy proper, and if so, it may be a matter of indifference which is done. But at the present time it seems to me more logical to do the craniotomy than the simple trephining.

The operation of Wyeth seems to me unwise, and likely to be followed by a fatal result in more cases than if the less heroic method usually employed is followed. Even this has resulted in two deaths already, and if a double operation is done and the two sides of the cranium are forcibly separated, the danger would seem to be far greater The dura might easily be torn, especially as it is so adherent in children. Moreover, the brain cannot suddenly follow the widening bone, but must be persuaded, as it were, to occupy a larger room by favoring its gradual growth. This, I think, is better obtained by the process I have followed than by Wyeth's method. The same remarks apply to McClintock's case.

A SYSTEM TO DEFRAUD INSURANCE COMPANIES.—There is said to be a gang in Paris, the members of which thrive at the expense of the insurance companies. Their plans are simple. A man lets himself be run over. The driver is his accomplice. The authorities are appealed to. An insurance inspector reports on the case, making the slight injury sustained appear a very serious one. The profits are divided up. As occurrences like this became frequent, suspicicion began to be aroused. The result ended in the imprisonment of sixty-five members of the gang.

DISLOCATIONS, UPWARDS AND BACKWARDS, OF THE SCAPULAR END OF THE CLAVICLE.

Read in the Section of Surgery and Anatomy, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May 5, 1891.

BY WM. H. DOUGHTY, M.D.,
OF AUGUSTA, GA.

In the July No. of the *Richmond and Louisville Medical Journal* (now *Gaillard's Medical Journal*), for 1876, I published an article entitled :

"True Method of Treating Dislocations, upwards and backwards, of the Scapular end of the Clavicle, with report of a case illustrating the principle employed."

According to standard authorities such injuries are rare and their treatment extremely unsatisfactory. Since 1876 I have seen but two cases, both of which occurred within a few months of each other in 1888 : one in my own practice, report of which accompanies this paper; the other in that of my friend and neighbor, Prof. Thos. R. Wright, of this city, through whose courtesy I am permitted to refer to it, and report an excellent result from the method of treatment given herein.

My first case was published in illustration of a new principle in the management of such injuries, and it was thought that the simplicity of the treatment and its satisfactory result would at least claim the attention of the surgeons, if not their approval of the principal then first enunciated. I am, however, not aware of its employment, or even recognition by others, a fact that induces me to present it before this body on this occasion, with two additional cases, perfect in their results, to support its claims to confidence and adoption. Hamilton, in sixth American edition of his great work on "Fractures and Dislocations," Wyeth, Ashhurst (*Encyclopædia of Surgery*), still detail the old imperfect methods.

The wood-cut given with the first case was intended to show the position of the arm, mode of dressing for maintaining this, and the permanent reduction and retention of the displaced end of the bone. It was a poor "cut," a libel on an excellent photograph from which it was made, taken soon after the dressings were applied. The photograph accompanying the present report shows the *result*, having been taken six weeks after the injury; the loose worn bandage bespeaks it's own superfluousness, having been used longer than was actually necessary to prevent the premature use of the arm by a thoughtless youth. As to the permanency of this result, I may report that an examination of the parts in March, 1891, nearly three years after treatment, revealed an altogether satisfactory condition. I wish also to state that a similar examination of my first case after the lapse of twelve years

showed a reproduction of the displacement, although at the time of discharge of the case it was fully restored as then reported. This fact suggests the necessity of restraining the early, free use of the limb with laboring men as an additional protection against the return of the luxation. The acromio-clavicular articulation is perhaps one of the weakest in the body, surgically speaking, and may need therefore greater attention in this particular, especially with adults, subjects of injury.

Of the three cases now reported under this method of treatment two give unquestioned

Injured June 1st, 1888. Photographed July 13th, 1888 (6 weeks), when bandage was removed. Illustrates result.

satisfactory and permanent results, while under former methods the latter were so rare that Hamilton says: "my notes furnish only *two cases* of perfect retention after a complete dislocation at this point" (p. 566), having recorded forty-one cases in all.

For the benefit of those who may not have read the former article on this subject (copy of which is enclosed herewith), the principle referred to, briefly stated, is as follows: *In lieu of direct pressure on the displaced end of the clavicle, made by pads, straps, bandages and other similar devices for retaining the same in position, it is suggested to draw the arm forcibly downwards and backwards against the side of the chest, thus stretching to the utmost the fibres of the deltoid arising from the outer third of the clavicle, and antagonizing the trapezius whose vigorous action maintains the displacement; and further, rotating and fixing the scapula by drawing upon its attachments (muscular and otherwise), to the humerus. The arm is then secured firmly and immovably by wide strips of adhesive plaster encircling the body and arm.*

Illustrates position of arm, mode of dressing for maintaining permanent induction, etc.

It is not necessary to encircle the arm first (see photograph of first case) and then the body and arm together, as there is liability when this is done to great tumefaction of the forearm and hand, as my second case developed.

A little reflection will satisfy the thoughtful that there is gained by this mode of management, as nearly as possible, the immobility of the scapula, the requisite antagonism of the trapezius by the deltoid, with the consequent replacement and retention of the displaced bone.

All of the structures about the shoulder-joint, thus drawn upon, aided by the substantial leverage of the humerus when pressed upon the side of the body, sustain the deltoid and contribute to the result. Moreover, the rotation of the scapula rather relaxes the fibres of the trapezius inserted into the spine of the scapula, while those of the deltoid arising therefrom are pulled upon. The position of the end of the clavicle, no longer free to move, is the mathematical resultant of the operation of these opposing forces, now equally balanced.

Thus, quoting from my former article, "by this simple mechanism was beautifully illustrated that cardinal principle in the surgery of dislocations, namely, that their safe and proper reduction and treatment can best be secured by a careful study of the muscular action that maintains the displacement (a factor in its production also), and the relations of the muscles that normally antagonize it." (P. 4).

By this plan of permanent adjustment the shoulder is left open to inspection at all times, and the bungling, irksome apparatus of every kind, heretofore employed, is dispensed with.

Report of Case.—On June 1, 1888, Herbert C., about 14 years old, was thrown from a road-cart, violently striking the right shoulder; was immediately disabled thereby, and complained of great pain in the shoulder and inability to move the arm.

An examination showed, besides a contusion of the soft parts about the shoulder, a dislocation upwards and backwards of the scapular end of the clavicle. The extent of the luxation was sufficient to produce a bulging of the fibres of the trapezius, very distinct, when viewed from all directions. Dislocation was easily reduced and bone maintained in position by method detailed elsewhere. Result was entirely satisfactory as will be shown by accompanying photograph taken on July 13, six weeks afterward.

SUGGESTIONS ABOUT ABDOMINAL AND PELVIC SURGERY.

Read in the Section of Obstetrics and Diseases of Women at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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The recent contributions upon abdominal and pelvic surgery are probably more numerous and practical than upon any other department of general or special surgery; still, there is a variety of opinion as to the best methods of treating pathological conditions within the peritoneum, or as to the immediate or permanent results of the many procedures that have been practiced. This is especially true of pelvic surgery; where we find, in the practice of the most experienced and successful operators, accidents during the operation and complications following it, for the prevention of which, there is no united opinion as to the correct technique to adopt; nor is it always possible to explain why troublesome complications occur in one case, and do not occur in another apparently similar case. Careful observation and experience may finally teach us much wisdom in these matters, and I will ask your kind indulgence while I briefly allude to a few things that may be of value, if carefully discussed by the members.

There is too much laparotomy done and too many men are doing it; men who know too little about the diagnosis and pathology of abdominal or pelvic diseases, or about the best technique in operating, and have few facilities for doing such work. Continuously good laparotomy work cannot be done except by men who largely devote themselves to this department of special surgery, and with such men some cases are operated on where the indications do not justify it. The appendages are sometimes removed for vague nervous troubles, where there is no disease of the ovaries or tubes, or peritoneal adhesions. Such cases are made worse, and are mutilated in a way that cannot be corrected.

The pendulum has swung too far, but many of our best operators are earnestly urging upon the medical profession that the operation is not indicated except in cases where there is well defined disease that has resisted, or will resist, other more conservative means.

As the experience of an honest surgeon widens, he operates relatively less frequently, and he can recall cases that he does not believe should have been operated on. An honest, intelligent and careful man may, when young in observation and practice, make mistakes in the selection of suitable cases for laparotomy, but this is less frequent than it was a few years ago. It is criminal to do dangerous or capital operations while ignorant of the best methods of doing such work, or for the purpose of adding a little cheap glory to our reputation; or to report cases that apparently recover from the immediate effects of the operation as permanently relieved before the final results can be appreciated. Such men usually have many bad results or deaths that they do not report so promptly, and the profession, or the people, seldom hear much about them.

I have reported but a small minority of my successful cases, but have promptly reported my bad results or deaths, because by a careful study of such cases, we finally do better work, by learning how to avoid or prevent complications or accidents that may cause the death of our patient. Reported recoveries in simple cases of laparotomy do not always indicate superior or unusual skill in

the operator; and such reports are of little value to the medical profession, and may indirectly result in the death of many women, by influencing ignorant men, with no facilities for such work, to attempt it because of its apparent simplicity.

What I may say relative to the technique, etc., of laparotomy, refers to cases where the conditions are manifestly such as to positively indicate the necessity for the operation. In preparing for an operation, the physical and mental condition, and the hygienic and sanitary surroundings of the patient, should be made as perfect as possible under existing circumstances; and unless absolute surgical cleanliness is observed in everything that may come in contact with the wound or peritoneum, septic infection may follow.

Some operators, who talk a good deal about antisepsis, do not know how to be surgically clean, because they have not learned to appreciate the value of cleanliness in every detail before and during the operation. The infection often comes to the patient by the neglect of little things, without the strict observance of which no one can be a successful abdominal surgeon. The danger from atmospheric infection is practically *nil*, as has been shown by experiments, and by the continuously good results of operations done in large amphitheatres before several hundred students. It may be possible for septic matter to reach the peritoneum through the intestinal walls, but this has not been proven. A spray of antiseptic solutions is not necessary, and if strong enough to kill pathogenic germs supposed to be floating in the atmosphere, it is positively poisonous.

Some men who use the spray Don Quixote-like, while pursuing an imaginary foe allow the deadly enemy to enter through numerous neglected channels—the hands, sponges, sutures, instruments, etc. Every operator should of course observe the broad principles that make the foundation of all good surgery, but if he neglects the details, he will be disappointed in the results. Asepsis is more easily accomplished in well regulated private or public hospitals or infirmaries; in private houses septic matter may more readily be introduced unless the operator, or an experienced nurse, rigorously superintends everything before and during the operation.

That we may better appreciate the practical significance of my position as to what constitutes asepsis in laparotomy, I will give some of the methods before and during an operation. I prefer not to operate in a room where the patient is afterward to stay, and when I am compelled to do so, if delay is admissable, I have the room thoroughly cleansed and ventilated for twenty-four hours before the operation, but use no spray or other means of disinfection. When it can be done, I operate in a specially prepared laparotomy room at St. Joseph's Infirmary, so arranged that everything in or about the apartment can be kept aseptic with but little care. The operating tables for the surgeon and nurses have plate glass covers, and the trays for instruments and pans for sponges and dressings are white porcelain lined.

Everything is carefully cleansed before each operation, and the operator and his chief assistant take a bath and put on clean linen, and white aprons reaching from the neck to below the knees and extending entirely around the body, so as to prevent the hands coming in contact with anything unclean. The towels are carefully washed and boiled, and are used for no other purposes. Soft and well-shaped sponges, free of sand or grit, are selected, and after being carefully washed, are made aseptic after the method of Greig Smith: Eight ounces of bisulphide of soda and four ounces of oxalic acid are dissolved in a gallon of water, in which twelve to twenty sponges are immediately immersed and kept for ten minutes; they are then washed by frequent changes of water for one hour, so as to get out all the sulphurous acid and sulphur. This is quite a labor, but it insures perfect freedom of septic matter. They are then wrung out of the water and put into a clean cotton or linen bag so as to keep out the dust while drying. When dry, they are put in large ground-glass-stoppered bottles or jars, and may be kept indefinitely in a pure condition.

Sponges once used may again be made aseptic by the same process, but I prefer not using them a second time if they have been soiled in septic matter. If a sponge comes in contact with anything that may be unclean, it is not used until again prepared. Chinese hard-twist silk of three sizes is used. It is purchased in unbroken packages, and wound loosely on separate glass spools. These are put into glass test tubes, which are stoppered with a piece of absorbent cotton and then sterilized. They are kept in the sterilizer for an hour, for three consecutive days. The silk is now so free of bacteria that a culture could not be made from it, and if the cotton is not removed it will stay in this condition. Each tube contains enough silk for a laparotomy. The silk and needles are kept during the operation in sterilized water at a temperature of 212°. This may not be necessary, but if the cotton has been partially displaced from the tube, it would be a wise precaution.

In the same boiling water I keep the small glass drainage and the large irrigation tubes. As our hydrant water is generally muddy, I use sterilized water, and always have it boiled before operating in vessels kept for this special purpose. The instruments are washed with sapolio or some strong soap, and boiling water is poured over them. When I begin the operation, the hairs of the brush are pushed through the eyes of the

needles and the holes in the instruments so as to get away all poisonous matter. It is well to have instruments, towels, dressings, etc., sterilized for an hour before using them, but they should be thoroughly washed before sterilization.

The patient is given one or more hot baths by a well trained nurse, the vagina and rectum are washed with copious injections of hot water, and the pubes is shaved. Before making the abdominal incision, the abdomen is again washed with soap and brush, and wiped off with sulphuric ether. Dry towels covered by towels wrung out of boiling water are placed over the abdomen to prevent anything possibly unclean coming in contact with the hands or any of the appliances used.

The nurses in charge of the sponges, needles and sutures are as aseptic as the operator. I use no antiseptic solutions, but use for sponges, instruments and hands boiled sterilized water kept as hot as can be borne. If everything is aseptic we don't need antiseptics, and they may cause general or local trouble. I will refer to but a few points in the technique of the operation. Adhesions are carefully separated close to the tumor or structure to be removed, or the uterus, to prevent hæmorrhage or wounding the intestines or bladder. Adherent intestines should be separated if possible; otherwise the operation is incomplete, and the patient will not probably be permanently, if at all, relieved.

The patients sometimes suffer more after the operation than before it, because of the extensive adhesions induced by uncleanliness, antiseptics or traumatism committed by a careless operator. I believe adhesions will be fewer if antiseptics are absolutely excluded from the operating room, and are not even used for the instruments or the hands. This may seem heterodoxical to many, but I have arrived at this conclusion, after experience and careful observation. If the instruments and the hands are clean, we need no antiseptics, and if they are unclean, the solution will not cleanse them or prevent infection, but may so irritate the peritoneum as to cause few or many adhesions. It will require more experience to decide how much damage is done in this way. Blood, pus and all foreign matter should be removed, and great care should be practiced to prevent rupturing a pus sack or cavity in an operation for their removal.

When any foreign matter except blood has gotten into the cavity, it should be thoroughly irrigated by hot sterilized water. This is not only the best way to cleanse the peritoneum, but it is also an excellent means of preventing or treating shock. This may be done by attaching one end of a three-foot piece of gum hose to a glass tube, and the other end to an iron granite funnel, into which water is copiously poured and forced by hydraulic pressure through all parts of the abdomen and pelvis.

The drainage tube is invaluable in many cases, but if improperly used it is capable of doing much mischief. There are many cases in which it is indicated; there are many in which it is not. It should be used if we close the abdomen before hæmorrhage has ceased, or if foreign matter, that is possibly septic, has got into the abdomen. It should be attentively cared for and frequently emptied with a long nozzle syringe by a well-trained nurse. It should be very small and light, with open end, and numerous fine openings on the sides. It should be carefully placed, and long enough to enter to the deepest part of the pelvis.

After the dressings are applied around the tube, a twelve-inch square piece of gum dam, with a small hole cut in the center, should be closely fitted around the neck, so as to keep the dressings clean. If a piece of absorbent cotton is kept over the mouth of the tube, and held in position by folding over the gum cloth, it will absorb discharges and remove the danger of sepsis from the introduction of pathogenic germs. It should be removed when soiled and a new piece used.

Some of our best known laparotomists use two long drainage tubes, and do not protect the dressings and the wound by the gum dam. A small tube will usually drain as well as a large one, and it does not subject the patient to so many dangers.

While it has been shown by Grawitz that the peritoneum may render harmless, and dispose of cystic fluids, pus, or pathogenic germs, it would be reckless to expect it to do so when we may supplement the efforts of nature by the use of a drainage tube, through which irrigation may be used if needed. The long nozzle syringe, or a syringe with a small gum tubing attached, affords the best means of emptying the tube, and this can be done aseptically. The practice of trying to drain the peritoneal cavity by introducing strips of gauze or wick into the tube to its bottom, or allowing shreds to enter the cavity, as practiced by German laparotomists, is bad surgery, but may be a means of introducing septic matter. While aseptic gauze may usually drain efficiently, it sometimes prevents drainage and causes the blood to coagulate in the tube. This is especially true where capillary drainage is attempted by the use of the wick. I have never seen the slightest tendency to coagulation where the syringe was used. Probably the most correct exposition of the methods of drainage in Germany will be found in the paper "Drainage in Laparotomy," by Sänger, of Leipzig, at the recent meeting of the Tenth International Medical Congress at Berlin. No mention is made of protecting the dressings from the discharges by the use of gum dam, or of removing the secretions by suction with the syringe.

Vaginal drainage, with possibly a few exceptions, should never be attempted, though Dr. August Martin, of Berlin, and other German operators, frequently practice it. It can accomplish nothing more than supra-pubic drainage, and subjects the patient to greater dangers from sepsis. The tube should be removed as soon as the conditions will admit, and when bleeding has practically ceased, and there is only a small quantity of clear inodorous liquid removed, it is no longer needed. If the tube has to be retained more than forty-eight hours, it should be rotated a little twice daily, so as to facilitate drainage by preventing obstruction in the small openings.

The dressings need not be disturbed to remove the tube, and in a few weeks the place where it was introduced can scarcely be detected; and ventral hernia will not occur at this point more easily than at any other part of the incision. Hernia will seldom occur if we are careful to unite the ends of the abdominal fascia. This may be done by the deep suture if the fascia is drawn out and the needle correctly introduced, but the separate suturing of the fascia is more reliable.

Recognizing the fact that in laparotomy work death is too often caused by septic infection, and that this can nearly always be prevented, I am deeply in earnest in my desire to aid in impressing upon the medical profession what I conceive to be the best means of preventing the introduction of septic matter. As death occasionally follows prolonged anæsthesia in organic disease of the heart, lungs or kidneys, we should carefully examine these organs before we decide to operate.

AXIS TRACTION AND A COMBINED AXIS TRACTION FORCEPS; ALSO AN ANTI-CRANIOTOMY FORCEPS, TO BE USED AS A SUBSTITUTE FOR CRANIOTOMY AND VERSION IN PELVIC DEFORMITIES.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May 1891.

BY T. J. McGILLICUDDY, M.D.,

INSTRUCTOR IN OBSTETRICS AT THE NEW YORK POLYCLINIC; OBSTETRICIAN TO THE NEW YORK MOTHER'S HOME MATERNITY HOSPITAL; SURGEON IN CHARGE OF THE YORKVILLE DISPENSARY AND HOSPITAL FOR WOMEN AND CHILDREN, ETC.

The correctness of the principle of axis traction is now, of course, conceded by all, but there are still many fallacious ideas in connection with its production. One of the most common is, that it is necessary to have rods attached to the blade by a movable joint, and this idea has been followed by about all the imitators of Tarnier's models. Another is that the traction, whether with tapes or rods, must in no way be connected with the handles, which must move freely in all directions, and still another is that rotation and flexion of the head can only take place when Tarnier's instrument or others similar to it are used. Tarnier's instrument, when clamped to the infant's head, interferes with rotation. These ideas I believe are detrimental to proper axis traction, as it is well known that, in the skilful use of the forceps, we should frequently unlock the blades that the head may undergo rotation and accommodate itself to the pelvic canal.

Pajot, Hubert, Morales and Albert H. Smith, all recognize that axis traction can be made without any such complicated attachments to the ordinary forceps.

With the following instrument, which was described in the *American Journal of Obstetrics* for December, 1889, we can make ideal axis traction during the entire passage of the fœtal head with remarkable ease and safety. In cases where much strength must be employed, you cannot perform axis traction properly with the common forceps by Pajot's, Smith's, or any other manœuvre.

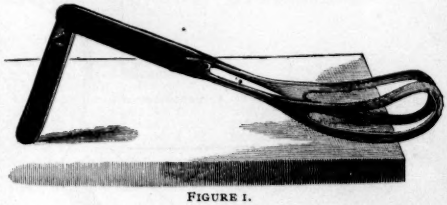


FIGURE 1.

FIGURE 2.

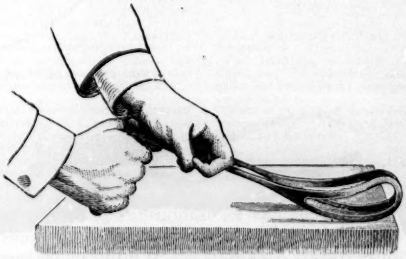


FIGURE 3.—Method of holding the forceps.

The advantages claimed for this instrument are:

1. That with its use axis traction is simple and uncomplicated.

2. That it is superior to Tarnier's in the fact that while using it, axis traction at the superior strait is perfect.

3. That while, in relation to Tarnier's instru-

ment, a great deal has been said of the indicator, in this forceps the indicator is in the hands of the operator, and tells his *concience musculaire* the direction of traction, as well as the resistance.

4. That it does away with the trouble of Pajot's, Smith's, or other methods, and in its use one has plenty of power and perfect control.

5. That it is easier to make rotation in the posterior positions with the adjunct handles, if it is thought best to use the forceps for that purpose.

6. That it is easy of application, and in its dual character, it has all the advantages of axis traction and the ordinary forceps, and saves the expense of buying two instruments where one will do.

The Tarnier instrument is complicated, cumbersome and expensive, thus nullifying its good points, and has been condemned by the Paris Obstetrical and Gynecological Society for these reasons.

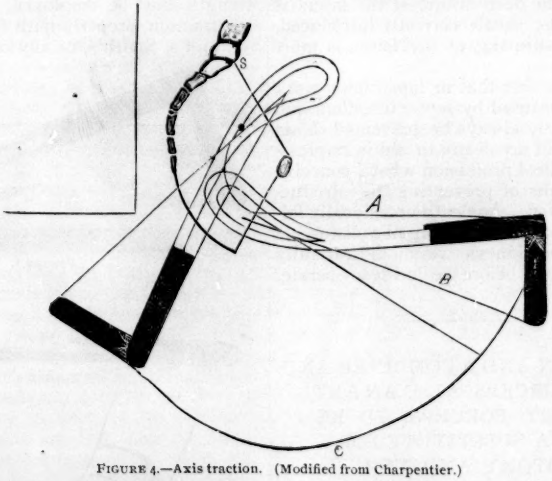
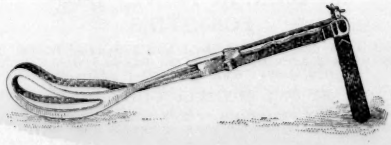


FIGURE 4.—Axis traction. (Modified from Charpentier.)



The forceps has an undoubted place as a compressor in certain cases. We are at all times to follow Nature's guidance. Who has not seen a fœtal cranium elongated an inch more or less, and generally distorted, by the moulding to which it has been subjected in its passage through the pelvis, and yet no damage has been done to the cranial contents. The following case will exemplify the amount of compression the brain will sometimes stand even in children:

About two years ago, I was asked by Dr. S. W. Robb to see with him a little girl of 3 years, who had several hours before fallen three stories in a hallway and, striking the tiled floor, fractured her skull. The line of fracture running from the mastoid region over the vertex to the other side, and the occipital portion was driven by the blow under the other part over half an inch, compressing the cranial contents to at least that extent. After prying the occiput back into position, the parts were treated antiseptically, and the patient made a rapid and complete recovery. The whole upper segment of the infantile brain, including the biparietal and bitemporal portions, is relatively its non-vital part, and will stand very considerable compression without danger, while the bimastoid or basal region is the vital portion, which Nature has so wisely protected by making it incompressible. I think it is conceded that the death of the infant is generally caused, where the ordinary cephalotribe is used, by the close approximation of the tips, thus fracturing this part and causing pressure on the medulla. Many cases are recorded of depressions, indentations, and even fractures of the arch of the infantile cranium, with rapid and complete recovery. Therefore, as some compression of the infant's head is compatible with its safety, and as there is no modern instrument that I am aware of, that stands between the ordinary forceps and

the cephalotribe or cranioclast, there can be no doubt of the utility of this, which is intended as a substitute for delivery by craniotomy or version in cases of pelvic contraction of minor degree, or where the common forceps is unsuccessful. It is an effectual tractor, and as the blades are sufficiently strong to prevent feathering, there will be no slipping. It makes moderate transient compression of the flexible infantile cranium in its upper portion, while it does not press too strongly on the child's neck with its tips. Thus it gives the child a chance for its life while it minimizes the risk to the mother. It is safer for the mother than craniotomy, because it terminates the labor more speedily, and there are also no cutting instruments to slip, and no spiculæ of bone projecting to tear the maternal parts. It is also quicker and better than turning, as transient compression of the flexible fœtal skull by the forceps is no more dangerous than compression by the contracted pelvis in version, and traction by the forceps is much less dangerous than traction by the lower extremities, which frequently disjoints the neck, compresses the funis and even decapitates. We must not alone look to the safety of the mother, but we must also have some regard for the safety of the infant. Turning may be better, in skilful hands, than leaving all these cases to nature, and it is an excellent substitute for craniotomy, because if you cannot get the head out, the compression on the cord kills the child, and perforation is then justifiable. With this forceps I believe we have something superior to either.

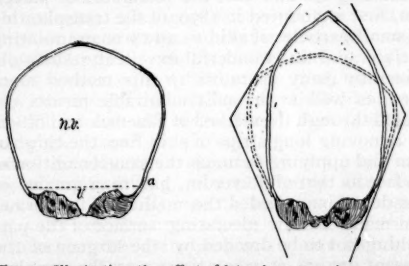


FIG. 5.—Illustrating the effect of lateral compression upon the sides of the cranium after the use of the forceps, after moulding and after turning. Showing also its double conical form, or rather its olive-shaped form.

The argument of Simpson that after turning, the bimastoid diameter is an apex to the cone-shaped head, and the biparietal diameter the base, and delivery is consequently easier, may be true when the forceps are not used; but the application of the forceps changes all this, and makes the bimastoid diameter the base of the cone, when it compresses the biparietal portion (Fig. 5). He believes "that the necessary degree of compressions would be effected more easily and by a less amount of force if the head were drawn through the narrow pelvis as a footling presentation than if it were driven into it as a cephalic presentation." I am sure that with the use of this compressing and traction forceps, and from the character of the cranial bones, that not only will no more force be required, but there will be greater safety for the infant. The question is, whether the uterine force, acting on the breech, plus the traction on the forceps, is greater than the uterine force acting on the head, plus the traction on the body, and with which we are justified in using the greater force.

Simpson's Conclusions in Favor of Turning are:	*Conclusions in Favor of the Anti-Craniotomy Forceps.*
1. The fœtal head has the shape of a cone with the base upward, and when the trunk is delivered, the smaller part of this cone may usually engage in the superior strait.	1. The fœtal head, after moulding or application of the forceps, has the shape of two cones placed base to base, and, like an olive, either end may engage in the superior strait.
2. The solid hold given by the body of the fœtus when it is delivered first allows us to use force enough to cause compression of the head, and to bring, if need be, the elastic and larger part of the cone into the greatest space in the contracted pelvis.	2. The anti-craniotomy forceps gives a much better hold, and causes slight compression if needed.
3. The head, drawn through the contracted pelvis, generally so adapts itself, or may be caused to adapt itself, in such a manner as to bring its smallest diameter, the bitemporal, instead of the biparietal, into the most contracted diameter of the pelvic strait.	3. The same thing occurs in cephalic presentation.
4. The cranial vault is more readily compressed when the force is applied to the lateral surfaces, as it is in the case of the after-coming head, and not as in the case of the before-coming head, partly to its lateral and partly to its superior surfaces.	4. With moulding and application of the forceps you compress not only the lateral surfaces, but the fronto-occipital surfaces as well.

In justifying these theories he arrives at the following conclusions:	*In favor of anticraniotomy forceps.*
1. The duration and hence the danger of labor is diminished by version. Therefore version should be resorted to as soon as dilatation is complete, without waiting for engagement of the head and in consequence before inertia can set in.	1. It is not diminished as much as when this forceps is used and it can be used, if necessary, before engagement of the head as well as after.
2. Compression of the fœtal head is compatable with its life.	2. If that is true why not use the forceps?
3. The traction to which the fœtal neck is subjected is not incompatable with fœtal life.	3. The traction to which the fœtal neck is subjected often kills the fœtus and sometimes decapitates it.
4. The risk of death from compression of the cord is not great enough to cause rejection of version.	4. There is no risk of death from compression of the cord in the use of the forceps.
5. Energetic but rapid compression is less dangerous to mother and to infant than less but prolonged compression.	5. It is the same with the forceps.
6. Local lesions of vagina, fistulæ, etc., are more likely to result from forceps than from version.	6. Local lesions generally result from impaction with delay, version, and least of all from improper use of the forceps.
7. The risk of rupture of the uterus during version has been exaggerated.	7. Much more risk of rupture with version than with forceps.

No woman should be delivered except by axis traction, and with these axis traction handles you can determine the exact amount of resistance, and the proper amount of force to use, and readily and easily use it.

Dr. Leischman, in writing of the long forceps

and high operation, says: "It is now very generally believed by those who have had the greatest experience that a large proportion of the unfortunate results depend upon improper instruments, and especially upon the use of such as are deficient in power. The observations which, on this point, we have already quoted from Dr. Barnes, apply here with peculiar force. Power and control are correlative factors toward the attainment of the result which we desire, and if there is a deficiency in the former, we can have but little confidence in the issue of the case." With this forceps we pull directly in the axis of the brain. One cannot grasp the handles of the ordinary forceps with comfort with both hands and still make any great axis traction. Most physicians say that the hands become cramped and lose all their muscular power after pulling a short time.

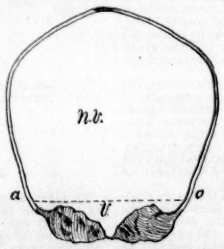


FIG. 6.—Illustrating the vital and non-vital portions of the fœtal cranium, and thus showing where pressure may be made.

This instrument is not a cephalotribe or craniоclast, but a conservative, life-saving forceps, to be used in cases of considerable pelvic deformity. The following are some of its dimensions:

Length, 16 in.; length from lock to tips of blades, 9 in.; length of handles, 7 in.; length of axistraction handles, 4 in.; average width of blades, 1¼ in.; greatest width between blades when closed, 2½ in.; width of tips of blades when closed, ⅞ in.

When the head is high in the pelvis the operator should make a careful estimate of the conditions present, the obstacles to be overcome, the size of the child's head, etc., even if he has to insert his hand into the uterus. We must apply the forceps to the sides of the child's head when it is possible, but we must also do it when there is room. If the instrument is properly used it will do no harm. It is shown by Winter (American System of Obstetrics) that the forceps, in contracted pelvis, has caused less than fifteen per cent. mortality.

Midwifery as an art, and the technique of Cæsarian section as an operation, has improved to such a degree that craniotomy on the living fœtus need never be performed.

Osiander the elder, in forty years of practice, never did craniotomy. Dr. Alonzo Garcelon, in whose office I had the honor of being a student, in an active practice of over fifty years, never did the operation, and Dr. More Madden, in over 26,000 cases, never performed it, and never saw a case where it was indicated. The conclusion to which I have arrived is, that when this instrument cannot deliver a living child, there is no other operative alternative but Cæsarian section, as the revolting operation of craniotomy on the living fœtus is not justifiable. It has not been an uncommon thing some years since in England for a single practitioner to report forty or fifty cases of craniotomy. The child is exactly the same in utero as it is after birth; the only change is in the surroundings; and to kill it before birth is as much a crime as to kill it after.

The instruments described are made, among others, by Mr. E. Ackerman, 153 W. 29th street, and sold at $6 and $8 respectively.

THREE CASES OF EPITHELIAL GRAFTING FROM THE HORNY EPIDERMIS, WITH REMARKS.

Read in the Section on Surgery and Anatomy at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY C. B. KIBLER, M.D.,
OF CORRY, PA.

Practical example is always in advance of theoretical precept, and so in this paper we will present in practical work, to demonstrate the operation, technique, material used, and clinical results in a few cases of what doubtless is a new and novel procedure in epithelial grafting. Appreciating the fact that the researches of Reverdin, first announced in 1870, of the transplanting of small particles of skin to a raw or granulating surface, and the wonderful excellent results obtained by many operators by this method since then, as well as the most admirable results obtained through the method of Thiersch and others by removing long strips of skin from the thigh or arm and applying to much the same condition of surface as that of Reverdin, has to a greater or less degree superceded the method of the former and made the raw ulcerating surface of the past a thing not to be dreaded by the surgeon of the present day, as it many times was the surgical approbrium of the last decade. There is no question of doubt but to America belongs the credit of first advancing the idea and technique of skin grafting. The late lamented F. H. Hamilton, that master mind, who was always in the advance guard of improvement in American surgery, in 1854 successfully transplanted skin to a raw surface. He had, however, seven years previous, in 1847, advanced the idea but failed to apply it to use until later on. We will not burden the Section with reviewing the history and the great achievements attained in the past upon this subject, but will detail briefly the object of this paper.

Case 1.—In October, 1889, J. L., a lad of 12 years, in attempting to jump from a moving freight train, had the soft and bony part of his right hand crushed under the wheels. Efforts were made to save the hand, but some five or six days afterwards I was called in to amputate it on account of sloughing. The thumb retaining some life, the hand was disarticulated at carpo metacarpal joint, leaving a stump of 24 square inches entirely devoid of skin. His mother earned her daily bread as a washerwoman. Her hands, from her daily avocation, became much caloused, and it was from this thick and indurated epithelial tissue that I obtained what proved to be most excellent material for grafting. Small pieces, about one line square, very thin, in fact not much thicker than tissue paper, were sliced with a sharp scalpel from the callosities of the palmar surface of his mother's hands. The granulations were first washed with 10 per cent. solution of warm creolin water and afterwards with saline solution of sterilized water. The surface from which the grafts were to be obtained was treated in similar manner; the grafts of epithelium, about six to ten in number, were then applied to the raw surface and covered with protective, which was held in place by rubber plaster; the remainder of the wound was dusted with powdered boracic acid, and the whole covered with moist gauze over which absorbent cotton, and lastly crinoline bandage. The dressing was changed every three or four days; all dressing removed, and new grafts applied upon a new field of raw surface. About 80 per cent. of grafts adhered and formed true skin covering. One peculiarity it will be well to call your attention to, and that is, the grafts must be applied precisely as they are cut off, for if you should reverse or turn them over, they will not grow, seemingly the vitality is entirely destroyed. This hand was covered with skin in about four weeks' time.

Case 2.—My next opportunity for applying this mode of grafting, occurred shortly after the above case. Mr. K., age 63, had a tank of boiling water emptied upon his neck, back, arm, and forearm, entirely destroying 400 square inches of true skin. This was covered after the method as above related, it requiring nearly five months to complete the cure, with very little contraction from cicatricial tissue.

Case 3.—Large indolent ulcer of left leg. Mrs. T., age 56; the ulcer was about three by six inches in size, of three years' standing, the surface of which was prepared for the grafts by denuding the surface of same with scalpel before applying the grafts; five weeks was required to complete a perfect cure, and has remained so since December last.

The advantages in this method over the use of skin, either in large or small patches, consists in the fact that there is no pain, or raw surface left upon those who furnish the material, that the supply from the hands of those whose avocation produce the callosities is daily renewed and no discomfort in any way is produced by removing the thin slices of tissue from the thickened epithelial surface, that from three to six or more grafts can be cut from the same surface every three or four days without the subject suffering the least inconvenience; at the same time it is entirely bloodless. No local anæsthetic is required, a much greater number, or percentage, of the grafts uniting than in any other method, for in my hands and others it has exceeded 80 per cent. of grafts that united and formed true skin. The abundant supply of material to be obtained at all times, without any coersion, for if it cannot be obtained from the palmar surface of the hand no trouble will be experienced in procuring it from the planter surface of the foot, where callous epithelial tissue can be obtained from the foot of almost any person.

If I have interested you with this brief summary of my experience in this new form of epithelial grafting, and in your hands after faithful trial if it proves as complete a success as in mine, I shall feel warranted in saying that in a great majority of cases, where now other methods are used, this can be substituted.

THE NATIONAL TEMPERANCE HOSPITAL.

Read before the National Medical Temperance Convention, Staten Island, N. Y., July 16, 1891.

BY J. DAVIS, M.D.,
OF CHICAGO, ILL.

Taking a panoramic view of human life as far back as history or legend extend, we find that progress of mankind has been marked by a continuous evolution of mind. The objective point of man's ambition has ever tended toward the happiness of the race. As this evolution of thought has progressed, man has comprehended his environments and learned how to bring himself into harmony with his surroundings. He has learned the value of the constituents of the air he breathes, and discovered that oxygen is necessary in unlimited quantities for life and health. Civilization has taught him that his habitation should not only be beautiful, but well ventilated. He has found that for perfect physical health, his raiment should not alone be for ornament, but that in clothing his body, certain well defined physical laws cannot with impunity be violated. The same truths have been demonstrated when he has sought to determine what to eat and drink to sustain life. Through knowledge gained by experience and observation, he has improved the diet of his barbarous ancestry. He has endeavored to eliminate that which was found

to be injurious, and to retain the most nutritious. By so doing, he has added to the strength and beauty of the human form. And still the evolution of thought goes on; still we are making new discoveries, and finding that for thousands of years we have been traveling the pathways of error. The work is not yet completed. Man is not yet a perfect being—reason does not always guide—passion, appetite and desire still control individuals and, in many instances, nations.

Some time in the remote past, it was discovered that by the decomposition of fruit and vegetable juices containing sugar, a liquid was obtained, which, when drank, produced a peculiar condition of exhilaration. This anæsthetic effect which they had over the nerve centres made these liquids much sought after. The knowledge of the methods of their manufacture spread rapidly over the entire civilized world, and the most extravagant claims were made as to their efficacy in health and disease. The secret of the popularity of these liquids has been, and is yet, the soothing effect resulting from the alcohol they contain. The destructive effects of these alcoholic preparations on the human system have been observed by thinking men for hundreds of years, and during this period, many spasmodic attempts have been made to stay the consumption of a poison that has seemed to threaten the destruction of mankind. But appetite has always baffled and smothered the voice of reason.

The one *great* hindrance that has stood in the pathway of reform has been the multitude of pathological conditions for which alcohol has been recommended by the medical profession. The average man is always glad of an excuse to gratify the craving of his appetite.

But mind ultimately triumphs. The evolution of thought has been at work upon *this* subject. In looking back over the history of the temperance movement for one or two hundred years, it is interesting to note the gradual steps of thought through which the mind has risen, 'till the subject occupies its present scientific aspect. At one time it was supposed that none of the alcoholic liquids were injurious, so long as they were not imbibed to the extent of intoxication. Again, it was suggested that the evil came only through the distilled preparations, while the fermented and malt liquors were harmless. Some of the temperance societies strongly advised that the use of ardent spirits be permitted on social occasions. It is only within the last few years, that organizations have come into existence on a platform of total abstinence.

Along with these views, the medical idea of the subject has been gradually gaining attention. The therapeutical application of alcohol has been growing more and more restricted. Slowly but surely, the evolution of thought has been unfolding the truth. It will not be necessary for me, in the brief space of this paper, to go over step by step the various experiments which have led up to the present scientific estimate of the case. It is sufficient to state, that it is now pretty satisfactorily demonstrated that alcohol, when taken into the system, is not assimilated, but acts as a foreign irritating substance, and is ultimately thrown off from the system, unchanged. It may also be stated that, while passing through the body, alcohol so acts on the various organs and tissues as to disturb the physiological processes, and in this manner, gives rise to many of the diseases which afflict humanity. If these declarations be true, then alcohol is neither a food nor a medicine.

Recognizing these great truths, and observing the destruction of human health and life going on all over the world from the use of alcoholic liquors, some of the most intelligent members of the Woman's Christian Temperance Union met a few years ago, and organized the National Temperance Hospital, as an institution in which to demonstrate to the world, that disease could be *more* successfully treated without than with the use of alcohol. In the organization of such an institution, many conflicting ideas had to be taken into consideration. By some it was suggested that alcohol be completely abandoned, both in the preparation and administration of remedies. Again, it was thought that its use should be restricted to local applications alone. But it was finally determined that the hospital should not rest on any irrational thought, but stand as an exponent of the most advanced scientific ideas on the temperance question. Hence, alcohol has been discarded as an *active* medicinal agent. The use of all fermented and distilled liquors is prohibited. Tinctures and extracts, where alcohol has been used as a solvent, have been retained, as it does not enter into their preparation in sufficient quantities to be considered an *active* medicinal agent. The basic principles upon which this institution rests may be formulated as follows:

1. Alcohol is a poison.

2. When taken into the system, it is not assimilated, but passes the round of the circulation, and is finally thrown off through the organs of excretion, unchanged.

3. While passing through the body it disturbs the various physiological processes, and in this way lays the foundation for disease.

4. It does not stimulate or strengthen, but it depresses and weakens.

5. As it is not assimilated, it cannot be a food.

6. As it disturbs every physiological process, it cannot be a medicine.

7. There is no disease afflicting the body, that cannot be more successfully treated without than with the use of alcohol.

Everything pertaining to or connected with

this institution rests upon this platform. The nurses of the training school are instructed in these principles, and every member of the medical staff is expected to maintain and practice them, not only in the hospital but in private practice.

The work so far done by the hospital has not been large, but it is flattering. There are only accommodations for twenty patients. It is not endowed, but strange to say, and contrary to the history of most hospitals, it is not in debt, but more than pays expenses. The House Physician's Report for last year shows that during that period, one hundred and forty patients have been treated, and ninety-eight surgical operations performed, with the phenomenally low mortality of only 5 per cent. Owing to the necessity of making the institution self-supporting, the work so far done has been largely surgical. In no instance, either surgical or medical, has it ever been deemed necessary to administer alcohol. No accidents, or conditions approaching an accident, have ever occurred during the administration of an anæsthetic. Some five years of surgical work without the use of alcohol convince me, that many of the sudden deaths which occur while giving anæsthetics, are due to the unnecessary administration of alcoholic liquors during or previous to the operation. It would be interesting and undoubtedly instructive, if the statistics of this subject could be collected and published.

I thoroughly believe that a grave and frequently fatal mistake is made in debilitated cases, by the administration of alcohol preparatory to the performance of severe surgical operations. The patients in these instances, are compelled to endure both the operation and the depressing effect of the alcohol on the vaso-mator nerve centres. A very typical instance came under my observation in the hospital a few weeks ago, in a case of ovariotomy. The patient was a woman of 35, from the country. Owing to a mistaken diagnosis, the operation had been neglected till she was reduced to an extreme degree of emaciation. In this debilitated condition, and almost pulseless, she was placed on the operating table. Under the old *régime*, half a tumblerful of brandy would have been given. Two grs. of quinine had been administered four times a day for two days previous to the operation. She rallied without the slightest symptom of shock, and made a rapid recovery.

Among the operations performed in the hospital during the last year, I may enumerate hæmorrhoids, trachelorrhaphy, tracheoperineorrhaphy, Alexander's operation, fistula in ano, varicocele, schirrus of the breast, amputation of leg, laparotomy, removal of polypus of the womb, ovariotomy, and numerous minor surgical operations. The diseases treated have also been varied, as septicæmia, peritonitis, chronic cystitis, paraplegia, tuberculosis, pneumonia, ovaritis, morphine habit, chronic alcoholism, Bright's disease, typhoid fever, intermittent fever, etc.

With the small beginning that we have made and the success we have already attained, we feel encouraged to pursue the work. The lesson already taught has been sufficiently convincing to impress the most skeptical that alcohol is not only unnecessary as an active medicinal agent, but that, in a majority of cases, it is an actual hindrance to the recovery of the patient. Slowly but surely, every year, this great truth is being impressed on the minds of the medical profession.

Says Herbert Spencer, "All great mental changes take place with deep laceration of feeling." This will be verified during the conflict that is arising in regard to the use of alcohol as a food and a medicine. Every foot of scientific advance will be contested by ignorance and fallacious argument. Ideas and beliefs that have been for centuries fed by passion, appetite and superstition, cannot be eradicated in a day. The process must be one of gradual education. Slowly but surely, the evolution of thought will accomplish this work. Truth, pure and uncompromising, will ultimately prevail. The present battlefield of the temperance fight now lies in the medical profession. If alcohol *is* a food and a medicine, all the eloquence and logic of modern thought cannot save mankind from intemperance. For man will never be able to take these liquids moderately and without harm. If alcohol is *not* nutritious, and serves no purpose as a therapeutical agent, then the world should be so instructed and its promiscuous use abandoned.

Surely the destruction that is now going on from the use of alcoholic liquids, deserves the immediate attention of the medical profession.

This must be the most potent factor in the production of human suffering. The danger that threatens the civilization in which we live is, that it may "crumble and fall from the corroding action of alcohol on the nerve and brain centres." The truth of our previous assertion must be demonstrated, and to do this, a hospital is necessary. The National Temperance Hospital is dedicated to this work. Its Board and Medical Staff send a greeting to the National Medical Temperance Convention.

SUBCUTANEOUS INJECTIONS OF CAMPHORATED OIL.—According to B. Alexander, of Berlin, hypodermatic injections of camphorated oil have a cumulative effect, causing, after the fifth injection, pains in the head. When used in diseases of the respiratory organs, in small doses, it has antipyretic effect. In heart diseases, where digitalis does not seem to be of further use, camphor injections will enable the action of digitalis to be resorted to again.

ADDRESSES.

AN ADDRESS DELIVERED AT THE OPENING OF

THE SECTION OF THERAPEUTICS,

At the Annual Meeting of the British Medical Association, held in Bournemouth, July, 1891.

BY WM. VICARY SNOW, M.D., LOND., M.R.C.P.,

Senior Physician to the Royal Victoria Hospital and the National Sanatorium, Bournemouth; President of the Bournemouth Medical Society.

Gentlemen:—On behalf of my medical brethren resident in Bournemouth, as President of this Section, I have a pleasant duty to perform, to give a most hearty welcome to our foreign guests and all members of the British Medical Association, on this their first visit to our town. Allow me also to thank the Council of the British Medical Association, for the honor conferred in allowing me to address you from the chair of this meeting.

In consequence of our more accurate knowledge of disease, and especially of those affections attended by febrile phenomena, since the introduction of the clinical thermometer, much progress has been made in therapeutics. We have been able to more correctly estimate the action of remedies, not only in health, but in disease, and hence treatment has become more scientific and rational. It is not, however, too much to expect that the greatest triumphs of the future may arise from the new study of animal chemistry and bacteriological research.

In specific disease we have learnt that it is not only the microörganisms present which have to be considered, but that it is probable the chemical changes they set up play a most important part in causing the phenomena of disease. It is well established that certain zymogenic organisms give rise to a chemical product inimical to their own growth, and when of a certain strength sufficient to stop the process. The mortality from consumption is now, in England, not more than one-half of that existing during the first fifty years of this century, while the death-rate from this disease has increased in many countries. This grand result has been obtained by improved methods of treatment, sanitation, improvement in the workshops and dwellings of the laboring population, and especially by the subsoil drainage of towns. In the year 1882 the tubercle bacillus was discovered, and it was proved that consumption could be produced in animals by the inoculation of a pure cultivation of it. Briefly, it has been demonstrated that without the bacillus no lung affection can be considered consumption. True, however, as this statement is, to my mind it is not sufficient to account for the production of the disease. The bacillus and its spore have great vitality, and must be, as a rule, present in our houses, and especially in our hospitals for consumption. Further, an appreciable percentage of animals slaughtered for food are said to be tuberculous, nor is the bacillus destroyed by imperfect cooking. Granted that it has been proved that this disease is occasionally produced by contagion, yet we do not find those employed in our consumptive hospitals more liable to infection than the ordinary population. I must hold, then, that the bulk of mankind are proof against the attacks of the bacillus, and that it can only fasten on the tissues of those weakened by bad hygienic or climatic conditions, repeated lung congestions, or hereditary taint. So far no drug has been proved capable of destroying in the human body the tubercle bacillus, or arresting its development by action on the diseased tissues in which it finds its pabulum. For years I have used carbolic acid and other inhalants, and found decided benefit arise in soothing cough and other symptoms, but no evidence whatever could I discover of their exercising any influence on the growth of bacilli. In cultures, a moderate advance above the natural heat of the body prevents the growth of the bacillus, and it was assumed that consumption might be cured by the inhalation of heated air; but in practice it was found impossible to raise sufficiently the temperature of the air in the lungs, and this treatment has now fallen almost into oblivion. The insufflation of sulphuretted hydrogen into the intestines has entirely failed, nor has any drug yet been proved to be able to influence the growth of the bacillus when injected subcutaneously, but trials are now being made in this direction.

At the International Medical Congress last year, it was announced by Koch that a remedy had been discovered which conferred on the animals experimented on an immunity against inoculation by the tubercle bacillus, and which would arrest tuberculous disease, and that the remedy would be tried on human beings. In spite of all precautions exaggerated reports of the value of the remedy were propagated, and the public impatience, and, it is even hinted, Government pressure, induced him to make a partial disclosure of the nature of the remedy and the method of its use before any sufficient experience had been obtained of its effects on the human body.

When this discovery was first announced it was compared to that of vaccination and Pasteur's treatment for hydrophobia, but several very marked distinguishing points induced most reflective minds not to anticipate equally good results.

Jenner was dealing with small-pox, a disease as a rule occurring only once during life, and rendered the system incapable of an attack by the substitution of a form of the same disease weakened by transmission through the cow. In hydrophobia the remedy is introduced into the system after the contagion, but before the symptoms of the disease have manifested themselves. In Koch's method the remedy is not applied until after the disease is established, and can only arrest its further progress, but cannot repair the damage already effected.

The public excitement was increased by a not unnatural mistake of the daily press in calling the remedy a "cure for consumption," instead of a "new remedy" for the treatment of that affection. The medical profession were also greatly impressed by the immediate beneficial effects produced on some surgical affections, and notably on lupus; sufficient time had not then elapsed to prove that the results were not always of a permanent character. Hence, even before the manufacture was perfected (and I have reason to believe that the first tuberculin produced more serious symptoms than supplies subsequently sent out), a treatment requiring the greatest care was initiated in the middle of almost the most severe winter of the century, and mainly in the foggy, crowded, and in many instances insanitary large cities of Europe.

One result only could follow: the unreasoning belief of the multitude in a new remedy was disappointed, cases of mischief from its use were reported, statements against it, often I believe beyond what science would justify, were made, and a danger existed, and still exists, that a discovery, which at any rate merits a fair trial, may be discredited and even consigned to oblivion from the rash way in which it was introduced. In consumptive people, even when not much tissue is affected, a small injection of tuberculin —as little as 0.002 cubic centimetre—may cause intense febrile reaction, and, from the frequency with which stained expectoration has been noted, we may infer that active congestion is set up wherever tuberculous tissue exists, whether in the lungs, kidney, or brain membranes; hence the danger of its use where complications either exist or, as in the very young, may be feared. Would any physician, if he had the choice, wish to treat a case of pulmonary phthisis in the air of a large city, during the time of smoke and fogs, much less put him on treatment which, for the time at least, must produce considerable febrile reaction? It appears to me that, instead of in Berlin, the treatment should have been initiated in good country air, and

when completed the patients should have been removed to an approved climate.

Before the injection of tuberculin can be adopted as a recognized method of treatment for consumption, the following question must be answered in the affirmative: Can this treatment be carried on with reasonable safety? In very weakly patients and those with extensive and advanced disease, such a treatment must be attended with risk, and it is not surprising to hear that fatal results have directly followed the injection of tuberculin. The ten cases treated at Ventnor, the similar number treated in the Sanatorium, coupled with the experience of Dr. Coghill at Ventnor in private practice, and my own, inclines me to believe that tuberculin may be safely used in cases judiciously selected, under favorable circumstances. I will now, as briefly as possible, call your attention to the only three cases I treated in the Sanitorium in the year 1890, and I do so because I have been able to trace the results over a period of seven months from the first injection.

E. M. was admitted on November 6, 1890. She had lost three sisters from consumption, and other relatives, had been ill more or less for three years, and had had one attack of hæmoptysis. Her afternoon temperature ranged from 90 to 100°. The expectoration measured ℥ss, was muco-purulent, and contained bacilli. The resonance was imperfect at the apex of the right lung, and the respiration bronchial; the left lung was affected to a less extent. The treatment was commenced on December 6th and completed on January 30th. Twenty injections in all were given. The patient had lost 4 lbs. in weight in the previous fortnight, and lost 6 lbs. more during the first four weeks of treatment. On January 30, the patient had very little cough or expectoration; did not react to 0.01 cubic centimetre, but bacilli were still present. She continued to steadily improve, and left the hospital on April 21, having lost all cough and expectoration and gained 12 lbs. in weight from the lowest point. Her temperature was normal, and, on examination, the physical signs were found to have improved. The last expectoration obtained contained no bacilli. She had been previously living at home without occupation; she now writes—July 2nd—that she has remained perfectly well, and has entered domestic service as nurse. As the patient was losing weight before, and for a month after, the commencement of the treatment, and had an exceptionally bad family history, and, as no symptoms of relapse have been observed up to seven months from the commencement of treatment, I think we may fairly claim that the disease has been arrested; no case of consumption can be considered cured until all symptoms have ceased for two years.

A. D. (dressmaker), 18. Admitted November 3rd. Duration of illness nine months. A sister consumptive. Had gained 2 lbs. in weight before treatment commenced on December 6th. Beyond slight dulness and prolonged expiration at the left apex, no physical signs existed; the expectoration was scanty, and contained a few bacilli; evening temperature, 99.8°. Eighteen injections were given but, in consequence of the severity of the reactions (104.8°) the amount was not carried above 0.005 cubic centimetre. January 30.—Patient feels perfectly well; has no expectoration or cough, and has gained 5 lbs. Physical signs unchanged. She continued to improve, and gained from the commencement of the treatment 12 lbs., and was discharged on April 22. She writes, July 2nd: "I think I am about the same weight as when I came home, having neither cough or expectoration, nor do I perspire at night; I am, also, able to follow my employment without difficulty." You will observe that tolerance of the tuberculin could not be established, and that the amount of the disease was very slight. It is quite possible that to the change of climate and rest from work the improvement is due.

W. H. (footman), aged 23. Three years before pleurisy with effusion, expectoration ℥ss.; muco-purulent, containing numerous bacilli. Considerable consolidation existed at the apex of the right lung, weak breathing was noted at the base and dry friction in the right axilla. The left lung was only slightly affected at the apex. Sixteen injections were given from December 4 till January 17, and then discontinued in consequence of a very severe attack of dyspnœa. Three times the expectoration was stained with blood, six times dyspnœa was noted. The febrile reactions were moderate. The treatment was resumed with a fresh supply of tuberculin on February 17, and continued until on March 19, no reactions followed the use of 0.01 cubic centimetres. The patient was discharged on April 9. He was feeling much better. The percussion note had improved and the breathing became more vesicular. The temperature was normal and the cough and expectoration slight. No bacilli could be found in the expectoration. He gained 4 lbs. in weight before the treatment was resumed, and during it lost 3 lbs. He shall speak for himself as to his after-progress in a letter to the lady superintendent, June 12:

"MADAM,—I am very pleased to tell you I have improved in health very much since I left the Sanatorium. I have gained in weight seven pounds, and I have been in work a fortnight now, and able to do it with pleasure, and feel it only right for me to let you know the good I got at the Sanatorium through Dr. Koch's treatment. I have hardly any cough, and I get no pains at all. I am pleased to say I am going to the Cape in July, so as to get out of England before the winter comes on, as my doctor thinks the fogs might strain my chest too much. I am pleased to tell you he gave me a good account of myself; he said of all the cases he had seen, mine was the best."

Subsequent reports confirm the improvement in this case. I will now allude to the result of the only three cases I ventured to treat after softening had taken place.

E. M., 44, had a slight attack of hæmoptysis five years since; softening had commenced at both apices. First injection February 6, 1891; discharged May 12. This patient improved in strength and gained in weight 16 lbs., but I could detect no signs of improvement in the lung condition.

E. K., 22. Two months since a slight attack of hæmoptysis. In this case, also, softening had commenced on both sides, and a small cavity existed at the right apex. First injection February 24; discharged June 15; gain in weight, 10 lbs. The improvement in the physical signs was slight. Numerous bacilli were found in the sputum.

These two patients, when admitted, were almost normal in temperature, and I am inclined to think much of the improvement in weight was due to rest from employment, better food, and change of climate. I am fortified in my opinion by the result of the third case.

C. H., 21, had been resident in Bournemouth and under observation two years, and had done clerical work at the Sanatorium. The treatment was carried out at his home without difficulty, although before, and when he at first came to Bournemouth, hæmoptysis had been a feature in his case. The physical signs improved, but he did not gain weight.

The treatment was carried out with the antiseptic precautions recommended, and no evil consequences followed the punctures. The patients were placed under the best hygienic conditions possible — kept in bed during the febrile reactions, and fed mainly on a milk diet. It may be asked, What unpleasant symptoms were observed, and is previous hæmoptysis a bar to the treatment? Although stained expectoration was frequently noted, it was never sufficient to cause anxiety, and never more than a temporary intermission of the treatment. Pain in the lungs, and especially where old pleurisy had existed, often occurred; in one case severe dyspnœa was observed. I have already mentioned that it did not recur when the treatment was continued with the fresh tuberculin.

Limits of space debar me from entering on the pathology of the remedial effects of the treatment, and I am pleased to tell you I have had no opportunity of studying post-mortem appearances.

Stimulated by Koch's discovery, the inventive faculty of the profession has been at work, and, as I write, new methods of treatment are under trial, especially in Paris. May they be tried under more auspicious circumstances, and not prematurely introduced. Whether this discovery be a success or a failure, I feel that a line has been indicated pregnant with grand results, not only for the arrest of consumption, but also for the treatment of other diseases.

BOOK REVIEWS.

SURGICAL BACTERIOLOGY. By N. SENN, M.D., Ph.D. Second edition. 8vo., cloth, pp. 265. Philadelphia: Lea Brothers & Co., 1891. Chicago: A. C. McClurg & Co. Price, $2.

This second edition of Senn's Surgical Bacteriology has been changed from the former edition by division into chapters, and by bringing the literature of the subject to the date of the revision, viz., March, 1891. The work is, therefore, at this time, the most complete of any. Prof. Senn's acquaintance with the languages of Europe has enabled him to make a complete digest of the European literature bearing upon this subject, and his untiring industry caused him to glean all that is valuable. His own original experiments, while doubtless giving color and direction to his thoughts, are seldom put forward, but the work stands just now as the best practical review of the literature of surgical patho-bacteriology in existence. The duration, however, of this kind of work is necessarily short. The vast and rapid changes that are going on in bacteriological discovery, heralded from week to week in the medical journals, and by publications direct from the great laboratories, render a book on bacteriology antiquated while yet warm from the press, and Prof. Senn will find that his classical book of experimental surgery will be quoted long after the "Bacteriology" has been raised to a top shelf in the library. His development of the hydrogen gas test and decalcified bone plates will perpetuate his unchallenged supremacy in his especial field, and compilations, however temporarily useful they may be, will not materially add to it. There are many compilers, but the investigator must be born with natural qualifications for the work, and hence they are few. But we must no longer digress, however tempting the theme. The book under consideration, strictly speaking, covers the essential portions of surgical pathology, and whoever, in this year of our Lord, 1891, would have a clear and comprehensive digest of the existing European literature of surgical patho-bacteriology will find it in this volume. The illustrations are inserted on separate sheets from the text, and are beautifully executed. The book is well worthy of the time-honored medical publishing house that issued it, and the fact that it has passed to its second edition is the highest testimony of its great merit.

THE SURGICAL TREATMENT OF WOUNDS AND OBSTRUCTION OF THE INTESTINES. By EDWARD MARTIN, M.D., and H. A. HARE, M.D. 8 vo. cl., pp. 165. Philadelphia: W. B. Saunders. 1891. Price, $2.

This little volume is the essay which received the Fiske Fund prize at the annual meeting of the Rhode Island Medical Society, held at Providence, June 12, 1890. The essay is divided into fourteen well-written chapters, which state in the best form the teachings of the day in regard to the subject. The authors also furnish a table of cases of cœliotomy for gun-shot wounds of the abdomen, and a careful summary of the tables. The chapters include the subjects of Intestinal Obstruction due to Congenital Malformations, Intussusception, Internal Strangulation, Volvulus, Obstruction from Foreign Bodies, Intestinal Paralysis, Chronic Obstruction and Peritonitis. There is a chapter on Diagnosis and on Wounds and Rupture. The tables are marred by bad proof-reading of the names of surgeons whose cases are quoted. Among the Americans thus pilloried we notice the following: W. *S.* Bull, instead of W. T. Bull, four out of five times; *G.* Hamilton instead of J. B. Hamilton and Kinlock instead of Kinloch. We trust that the European surgeons have met a better fate at the hands of the essayists.

Notwithstanding the carelessness here noted, the authors have not only produced a very readable book, but one of extreme value, and the practiced hand of Dr. Hare is everywhere manifest in the "make-up" and literary character of the book. One of the doctor's ardent admirers recently said that he was of impression that Dr. Hare had an open contract to produce seven-eighths of the literature of the present decade, without regard to subject; and it must be admitted that if the allegation is true, medical literature will be the gainer, in clearness of expression, graceful sentences, and conciseness of statement. The book under review is an example in these respects which Americans can well afford to compare with similar works abroad. We notice here, without, however, subscribing to their conclusion, the strongest protest against surgical interference and intestinal suture in cases of gun-shot wounds of the intestine, and the authors claim that the results of cases treated expectantly are as good as those by laparotomy. They cite two instances where Senn's hydrogen gas test has failed to show the perforations.

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BY-LAW IV.—THE PUBLICATION OF PAPERS AND REPORTS.

No report or other paper shall be entitled to publication in the volume for the year in which it shall be presented to the Association, unless it be placed in the hands of the Board of Trustees on or before the first day of July. It must also be so prepared as to require no material alteration or addition at the hands of its author.

Authors of papers are required to return their proofs within two weeks after their reception; otherwise they will be passed over and omitted from the volume.

Every paper received by this Association and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published and sold for the exclusive benefit of the Association.

The Board of Trustees shall have full discretionary power to omit from the published *Transactions*, in part or in whole, any paper that may be referred to it by the Association, or either of the Sections, unless specially instructed to the contrary by vote of the Association.

LONDON OFFICE, 57 AND 59 LUDGATE HILL.

SATURDAY, AUGUST 8, 1891.

CHEMICAL ANALYSIS OF FOODS.

One of the first of the artificial foods for infants, was that of LIEBIG. It was made by a master hand, so far at least as its chemistry was concerned. It contained the exact amounts of albumin, sugar, fat, and salts necessary for the nutrition of the child. But an extensive use proved that it failed in its object. The lesson which it teaches is only slowly gaining ground. That lesson is, that the animal organism requires something more for its maintenance than so much albumin, so much fat, and sugar, and mineral matter. It requires that these substances shall be of such kind, and in such form that they can be both digested, and assimilated. The examination of the food of the properly nourished individual, shows that he requires for instance, a given amount of proteid. Certain foods contain the proper amount of proteids. It is thereupon assumed that these foods will answer the requirements of nutrition, which does not always happen. This is not the first nor the only time that physicians have been misled by a name. It is a little difficult to realize that a name is only a convenient tag, and does not always reveal completely the contents of the bundle to which it is attached. What is a proteid? Something which has certain definite chemical reactions. Certain differences in reaction enable chemists to separate in a crude, but convenient way, the proteids into several classes. But the separation of the proteids into classes, and indeed the very recognition of the proteids themselves, is by no means wholly artificial, and the several tests for these purposes give no idea whatever of the structure of these substances.

The various proteids certainly are available as foodstuffs, but under what conditions each is most effective as a nutrient, is not known. Moreover, this question is a biological one, and, at present at least, far beyond the ability of chemistry to answer. It should therefore be clearly realized, that the term proteid is a purely chemical one, and gives name to a group of substances which answer the requirements of indirect, almost artificial chemical tests, and that the taking of the word in the broader biological sense, and making practical applications as such, is liable to terminate in disappointment, as in the LIEBIG instance.

Physiologists have shown conclusively that common salt is the only mineral substance, iron possibly excepted, which has a direct food value. All other so-called mineral elements are available for food only when they form constituent parts of the complex molecules of the various organic foodstuffs. For instance, it has been attempted to supply the deficiency of lime in the bones in rickets, by the administration of calcium phosphate, but without success. The animal organism is unable to build calcium phosphate into bone tissue. It must receive its calcium and its phosphorus in some other combination. This combination, to be assimilable, must be an organic one, such as is found in the yolk of the egg, to give a single example. To destroy a cereal by heat to obtain from the ash the phosphate produced, is an illogical procedure. Identically the same products can be formed in the laboratory at much cheaper rates. The condition which made this ash available as a food, was its existence in organic combination in the grain, and this availability was destroyed with the destruction of the grain.

At a meeting of the Association a few years ago, the writer heard a well-known member remark to a food manufacturer, who was demon-

strating by chemical tests the large amount of albumin present in his beef extract, that it was quite immaterial how much albumin it contained, that the chemical test was worthless, that the only test of the value of his food was the clinical observation of its assimilability. This seemed at the time a little severe to the writer, who was still impressed with the equivalence of chemical and nutritive terms. To-day he can heartily endorse the observation.

It is not intended to deny that chemical analysis is of some value in assisting in the selection of foods, but one must be guided in making these analyses by a clear and full idea of their scope, and their limitations. Ultimate analyses of foods are of very little use in determining the nutritive value of these substances, and are often very misleading.

THE PATHOLOGY OF QUININE AMAUROSIS.

DR. DE SCHWEINITZ, of Philadelphia, has contributed in the *Ophthalmic Review*, February, a paper on the results of some experiments undertaken by him to determine the lesion of blindness from quinine. He administered the drug by the hypodermic method in a series of six dogs, using doses varying from 1 grain to 6 grains to each pound of the body-weight. The result of this procedure was a loss of vision in from three to fourteen hours—the exact interval before the onset of blindness not being ascertainable; this symptom was also commonly accompanied with other general disturbance within the same interval of time. In one instance the loss of vision remained practically complete for a period of twenty-nine days in consequence of a single dose of 3¾ grains to the pound of body-weight. The ophthalmoscopic appearances were essentially like those found in man having amaurosis from quinine. In every case the pupil was immovably dilated. Each dog was killed—if he did not die from the effects of the drug—and a microscopical examination was recorded of the eyes, optic nerves, chiasma and occipital lobes. No gross lession, with one exception, was found in the nerve, disc or retina; in the exceptional case there was in one eye a decided dilatation of the blood-vessels, with white thrombi in the smaller veins, while the central vein was plugged with a clot. A dilatation of the vessels, to a minor degree, was observed in the optic disc in some other cases. No marked lesion was found when examining transverse sections of the nerves, except at times some œdema was observed and a slight apparent increase in connective tissue. It is worthy of note, however, that even in dogs blind from quinine for a month and more, there was no appearance of atrophy of the nerve fibres, nor in the earlier stages was any neuritis discoverable. No abnormal change in the chiasma was observed in any instance. Sections of the cuneus showed in every instance a remarkable dilatation of the pericellular lymph-spaces, with degeneration of the protoplasm of the cell, and the lesion was most marked in the case of the dog that was longest blind. The author does not assert that he has in this lesion discovered the true pathology of quinine blindness, for the reason that he appreciates the room for imperfections in microscopical studies of this nature, but he believes that his observations will strengthen the position of those who have located the lesion in the optic nerve somewhere between the chiasma and the eyeball, and that œdema enters into the question as being a part of the morbid alteration. It is also well to bear in mind that the peripheral circulation may possibly be affected, as instanced by that one exceptional case where a clot was discovered in the central vein. This was, without doubt, an extreme instance, and should a like change take place in the human subject, any chance of recovery from blindness would be nearly or quite hopeless.

BEER VERSUS BRANDY.

The manufacture and consumption of fermented liquors is sometimes urged in the interests of temperance, on the ground that it diminishes the use of distilled spirits. That such is not necessarily the case seems pretty clear from the statistics of the countries in which wine and beer are most largely consumed. The *Irrenfreund* has lately called attention to the alarming prevalence of drunkenness in Germany. The consumption of beer, throughout the German Empire, is a little less than half a pint per diem for the whole population—men, women and children. Large quantities of wine are also consumed. There is probably no country where the conditions are so

favorable for temperance, on the theory above alluded to. Nevertheless, Germany ranks third in the consumption of distilled spirits, consuming eleven litres, or twenty-three and one-fourth pints per capita of the total population. Denmark consumes twenty, and Russia twelve litres per capita. Even if it be granted that the consumption of such an amount of wine and beer in Germany is in itself an unmixed benefit, it is not evident that the more deleterious forms of alcoholic indulgence are suppressed by it to any great extent.

Wine has been, from time immemorial, the national drink of France, as beer is of Germany, but the consumption of spirits is steadily and rapidly increasing in that country. The total amount consumed in 1890 is reported by the Minister of Finance at 37,395,000 gallons. In the department of the Lower Seine it amounted to three gallons per capita of the population.

Vienna is celebrated for its beer, and is in the midst of a wine-growing country. Of 516 men admitted to the city insane asylum in 1888, 143 are reported to have become insane exclusively through alcoholism, and in 93 more cases it is reckoned as a contributing cause. On the whole, it seems as if the friends of temperance would have to look in some other quarter for allies in the suppression of drunkenness.

GRAFTING CANCER IN THE HUMAN SUBJECT.

At a recent meeting of the Paris Académie de Médicine, CORNIL reported two cases of successful grafting of malignant growths in the human being. He stated that the first case had been communicated to him by a foreign surgeon, whose name he withheld, and whose act he did not justify. This surgeon removed from a woman, a breast which was the seat of an enormous tumor; then while the patient was still under the influence of the chloroform, and of course without her consent, cut a small section of the tumor and inserted it under the skin of the opposite healthy breast, using the strictest antiseptic precautions. The wound healed by first intention and for the first few days nothing was noticed at the site of the graft, but soon an indurated nodule developed and in two months, having grown to the size of an almond, was removed by the same surgeon.

Both tumors were examined by CORNIL, who found them to be sarcomata and identical in structure. The ingrafted portion of the first tumor had become a part of the healthy breast, vessel anastomoses had occurred, its cells had penetrated into the healthy adjacent tissues, and its rapid growth was indicated by the karyokinesis of the cells. Shortly afterward the patient died of some acute intercurrent malady, and the autopsy, which was made with great care, revealed no trace of sarcoma in any portion of the body, neither in the lymphatic glands, internal organs, or the spongy tissue of the bones.

In the second case, a portion of a tumor removed from a breast was in a similar surreptitious manner inserted into the healthy breast of the patient. This tumor proved to be an epithelioma. The second graft, like the first, produced no inflammatory reaction, but later at the site of its insertion a nodule developed. The patient declined to have the second breast removed, and disappeared from the surgeon's observation.

It is pleasing to note that the French Academy at the close of the reading of this paper, expressed only its stern disapprobation of the methods employed, and by silence refused to discuss the scientific aspects of the cases. The indignation was not confined to the Academy, but also found vent in the public press, and CORNIL felt compelled to defend himself in a letter to *Le Temps*, in which he defends the publication on somewhat remarkable ground. He compares it to the breaking of a bridge in a railroad accident, the causes for which are sought in the midst of the calamity. He further instances the well known case of Alexis St. Martin, whose accident gave DR. BEAUMONT an opportunity to investigate the function of the stomach. From these he urges that while we must condemn the surgeon who did the work, we ought not to ignore whatever the unfortunate occurrence may teach us. This is pure sophistry. It ignores the grand object of medicine, which is to relieve suffering, not to acquire abstract knowledge. And questions which require for their solution the infliction of needless suffering on human beings, must wait until a proper opportunity for their solution presents itself. We cannot afford to stultify our profession, whose great boast, and whose legitimate boast, is its humanity, by such criminal acts.

Putting humanity entirely in the background, such experiments can not be defended even in the

name of science, for they are not scientific. They prove only that the implantation of a sarcomatous or epitheliomatous mass in persons already suffering from the corresponding disease is capable of causing a local sarcomatous or epitheliomatous growth. This does not prove that these growths are infectious, for who can say that some other form of irritation in these same individuals would not have caused like results? The gain to science by these experiments is decidedly problematic, at most it is insignificant, and utterly incommensurate with the cost at which it was obtained. We could far better have afforded that such experiments should have forever remained untold, than have gratified, perhaps to some extent justified, the individual who made them. If, however, the storm of indignation which has been aroused shall deter others who might have in view, in their zeal for science, similar unjustifiable experiments, CORNIL's publication will have had a real, though unexpected value.

It remains to be said that since the Parisian affair, PROFS. HAHN, and VON BERGMANN of Berlin, have both been openly charged, by an officer of the German Government, with having inoculated cancer in the healthy human being. Their reply has not yet come to hand.

A CASE ARBITRATION.

Last week we took occasion to note the result of a recent trial for malpractice, and on account of its fairness and justice published in full the decision of the Appellate Judge who heard the case. This week we note another instance in which suit was brought against one of the most prominent physicians in this city, and by consent submitted to a board of three physicians chosen to act as arbitrators. A large amount of testimony was heard, the trial occupying an entire week. In the finding the arbitrators unanimously decided that the defendant was not guilty as charged by the plaintiff. The plaintiff alleging that the defendant had improperly diagnosed and treated the case. The arbitrators found the defendant's diagnosis to be correct and the treatment in perfect accord with the laws of medical science.

The method of settling disputes by arbitration is one commonly adopted by merchants and others engaged in the common business affairs of life, and is highly satisfactory to all concerned except the attorneys. This is the first instance within our knowledge where this plan of settlement has been adopted in a case where an individual believed himself unskilfully treated by a physician.

Such a method of settlement should always be resorted to when it is possible to do so, and no case allowed to be brought before any other tribunal unless the plaintiff give bond for all costs incurred by the defendant where the case is decided in defendant's favor.

LIFE INSURANCE AND SYPHILITIC "RISKS."

MR. JONATHAN HUTCHINSON has published a paper in the *London Practitioner* on the "Modern Treatment of Syphilis," in the course of which he considers some of the more important relations of syphilis and life insurance. He states that he had recently been requested by a life insurance company to formulate a code of rules for the guidance of its examiners when considering the acceptance or rejection of applicants for insurance who have had syphilis. His advice on this subject was for the most part favorable to the applicants; with this exception, however, that he would decline those persons who at the time of their presentation, shall be undergoing the active development of secondary symptoms. These applicants, he advises, should be told to wait until these symptoms had disappeared. He based this counsel on the fact that it is always desirable to know how well or how ill the syphilitic patient sustains the specific treatment proper to the second stage of the disease, and also how willing and attentive he may be to follow out the directions of his physician. Mr. HUTCHINSON holds that an insurance company might make a profitable business out of syphilitic risks accepted in the early stage of the disease and taken at the ordinary rates, for he has found that the threatened life is often a long one. In his experience such syphilitic persons appear quite as likely to attain to length of days as others who have not been syphilitic. In the cases of those who present themselves free from symptoms, but who have the history of a former attack, the advice is that they be not refused, provided that they have not definitely become the subjects of the tertiary lesions of the disease, or have not, owing to

idiosyncracy or inadequate treatment, had a prolonged seige of secondary symptoms. But even among these there are not a few who would be regarded by Mr. Hutchinson as eligible risks at ordinary rates.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

In the New York letter published in THE JOURNAL of July 25, by a slight mistake in the placing of quotation marks, Dr. Morton is credited with some remarks on the return of pauper and diseased immigrants which were not made by him, and the quotation from Dr. M. should end with the paragraph referring to the colony for the insane at Gheel.

Since that letter was written, the Treasury Department at Washington has issued a circular calling the attention of all corporations and others engaged in bringing alien immigrants into the United States to the laws of this country regulating immigration, as amended in March last. In this it is stated that the evident disposition of many steamship lines, under the pressure of sharp competition, to gather up in Europe and bring to the United States all who, with or without the aid of others, can pay the now trifling sum of a steerage passage—regardless of their character or condition and regardless of our laws—compels on the part of the Government a close scrutiny, and the adoption of more comprehensive measures than have hitherto seemed necessary. While it is the purpose of the Government to enforce these statutes in their letter and spirit, it is desired that as little discomfort and distress as possible result to persons affected by the immigration laws. With this in view, it is important that persons of the prohibited classes be prevented from leaving their homes and crossing the sea, only to be sent back on their arrival here. It is wrong that either the greed of some steamship companies, the mistaken kindness of friends, or the wish of many foreign communities to be rid of burdens properly theirs, should be permitted to result in this useless cruelty. So far as possible, the sifting process should be applied at the beginning, not at the end, of the long journey.

The circular also gives notice that, inasmuch as some steamship lines, in order to increase their carrying capacity, have recently disregarded the provisions of the laws of the United States requiring a certain allowance of cubic air space to each steerage passenger, hereafter more thorough inspections will be made of all steamships engaged in bringing immigrants here, and that the penalty for violation of the law in this respect will be rigidly enforced.

It is a fact of great interest as regards the cause of medical education in New York that from this time on the salaries of the faculties of both the medical department of the University of the City of New York and of the College of Physicians and Surgeons are to be fixed sums, and no longer dependent on the number of students matriculating. On July 1 the College of Physicians and Surgeons became, under the authority of the legislature, a part of Columbia College, and will in future be administered as such, the medical department thus made an integral part of the university system, instead of having a merely nominal connection with the central collegiate institution. It is also announced that, as has been the case for some time as regards the College of Physicians and Surgeons, a three years' graded course of study is now to be obligatory at the University Medical School. Another innovation at the latter institution is the introduction of the recitation system in place of the didactic lecture during the first and part of the second year.

The circular of information just published by the College of Physicians and Surgeons states that the large accessions to its teaching force, notably in the department of anatomy and in the physiological, pathological and chemical laboratories, permit the realization, to a degree hitherto quite impossible, of the great opportunities for instruction and research afforded by the excellence of the dissecting rooms, the laboratories and apparatus. The college building proper covers an area of no less than 15,428 feet, and the Vanderbilt Clinic, which is connected with it by a covered way, besides a very completely equipped dispensary department, contains numerous small rooms for the direct practical teaching of diagnosis and treatment to groups of students, and a theater for clinical lectures which accommodates an audience of nearly four hundred. During the year 1890, 120,000 patients were treated at this institution. The Sloane Maternity Hospital, also upon the college grounds, contains thirty-nine beds, all of which, by reason of its large endowment fund, are free in perpetuity. The obstetric service here is under the direction of the professors of midwifery at the college, the instructor in obstetrics being the resident physician; and the members of the graduating class are each required to attend a certain number of cases of labor in the hospital. The students of the third year are divided, at the beginning of the term, into classes of six, each section remaining on duty for one week, and during this time they are furnished with rooms in the dormitory free of charge. These lodgings are upon the college grounds, and are connected with the hospital by electric wires. Bedside instruction is given by the resident physician during the week, and at its close an examination is held in the hospital by the adjunct professor of obstetrics on the work of the week. From the time of the opening of the hospital to May, 1891, a period of three years and four months, 1,250 deliveries took place at this instintion.

Owing, no doubt, in great measure to the continued cool weather, the health of the city still remains unusually good for this season of the year, the number of deaths being much smaller than the average of past years. During the week ending July 25, 947 deaths were reported, which represents an annual death-rate of 29.34 per thousand of the estimated population of the city. Considerably more than one-half of this total mortality, however, was in children under five years of age.

It has been suggested that the Public Works and Health

Departments might do good service together in promoting the health and comfort of the poor in a very simple way, now that New York, thanks to the new aqueduct, has at last an abundance of Croton water. Apartments in tenement houses are, as a rule, provided with stationary wash-tubs, and two of these tubs are generally placed side by side. The partition between the two is immovable; but if it could be taken out, and the two wash-tubs thrown into one, the tenants would have a bath-tub at their command. The Croton water rates upon bath-tubs have been so high that the use of this great convenience has been restricted, and the insufficiency of the water supply has been alleged as the reason. That reason exists no longer, and the official who would aid the tenement house dwellers in securing bath-tubs in their rooms, would certainly deserve to be classed as a public benefactor. P. B. P.

Section of Physiology and Dietetics.

To the Editor:—By order of Chairman C. H. A. Kleinschmidt, those interested in the Section of Physiology and Dietetics are invited to present papers or essays, and send titles to the undersigned, that we may get up the programme as soon as possible.

EPHRAIM CUTTER, Sec'y.
1730 Broadway, New York.

NECROLOGY.

Increase S. Hamilton, M.D.

Dr. I. S. Hamilton, one of the pioneer physicians of Southern Michigan, died at his home in Tecumseh, July 25, aged 82½ years. He graduated from the University of N. Y. at Fairfield in 1835, and at once started for the Territory of Michigan. Being without means he walked from Detroit to Lenawee County, where he practiced medicine for over 52 years. He encountered all the hardships and privations incident to professional life in the wilderness; building the first frame house and opening the first school in his part of the county. He was a pioneer in all religious and educational enterprises of the time. His reputation was unusually large for a country practitioner. He gave much attention to the diseases of women, and in their treatment, many years ago, he originated and successfully used "massage" when it was not recognized by the profession. He was a corresponding member of The Detroit Academy of Medicine, a member of The Southern Michigan Medical Society; The Michigan State Medical Society, and The American Medical Association.

MISCELLANY.

AN ARMY MEDICAL BOARD will be in session in New York City, N. Y., during October, 1891, for the examination of candidates for appointment in the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before September 15, 1891, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between 21 and 28 years of age, and a graduate from a Regular Medical College, as evidence of which, his diploma must be submitted to the Board.

Further information regarding the examinations may be obtained by addressing the Surgeon-General U. S. Army, Washington, D. C.

C. SUTHERLAND, *Surgeon-General, U. S. Army.*

THE MEDICAL PRESS ASSOCIATION will meet in St. Louis October 14, on the first day of the meeting of The Mississippi Valley Medical Association. It is desirable that every Medical Journal in this country shall have its representative present on that occasion.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.—The following changes have been made in the Faculty:

Dr. G. E. Stubbs, Emeritus Prof. of Clinical Surgery.

Dr. W. S. Stewart, Emeritus Prof. of Obstetrics and Clinical Diseases of Women.

Dr. H. E. Goodman, Honorary Prof. of Surgery, Clinical Surgery and Orthopædics.

Dr. J. M. Anders, Prof. of Principles and Practice of Medicine, Clinical Medicine and Hygiene.

Dr. E. E. Montgomery, Prof. of Obstetrics and Gynecology.

Dr. Ernest Laplace, Prof. of Surgery, Pathology and Clinical Surgery.

Dr. W. F. Waugh, Prof. of Clinical Medicine.

THE TREATMENT OF FISSURED NIPPLE.—Dr. Barton Hirst, of Philadelphia, in the *University Medical Magazine* for March, advises the use of an application of equal weights of castor oil and subnitrate of bismuth in the treatment of fissure of the nipple. The nipple and adjacent parts should be thoroughly washed and disinfected before applying the ointment. One of the advantages of this application is that it need not be removed if it becomes expedient for the child to nurse at that breast. The ointment makes a smooth and flexible coating, which not only serves as an efficient protective, but tends to reduce the pain and reflex irritation. For the mammary engorgement and pain that so frequently occur when the nipple becomes fissured, he advises the employment of lead water with laudanum, in addition to the ordinary sling-compress. The entire breast should be covered with a cloth wet with the lotion, and the applications should be repeated at short intervals. This line of treatment ordinarily prevents the formation of abscess. It is best to allow the unaffected breast alone to be nursed, and the milk from the affected side can be drawn off with the breast pump. If it is imperative that the infant shall nurse at the fissured nipple, a glass shield with a rubber tip may be used.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from July 25, 1891, to July 31, 1891.

Asst. Surgeon Junius L. Powell, granted leave of absence for two months, on surgeon's certificate of disability, with authority for his admission to Army and Navy General Hospital, Hot Springs, Ark.

Surgeon Curtis E. Munn, U. S. A., is granted leave of absence for twenty days, to commence on or about August 5, 1891.